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PADRE GUARINO GUARINI IN PARIS

DAVID R. COFFIN

THE TRIUMPHAL JOURNEY to Paris in May and June 1665 of the Italian sculptor and architect, the Cavaliere Gian Lorenzo Bernini, called to France on the personal invitation of King Louis XIV to build the royal palace of the Louvre, marks the climax of the influence of Italy upon French architecture.

The renown of Bernini and the publicity of his trip to France—even though he was out-manuevered by the French architects¹—has helped to cast a shadow of forgetfulness over the activity at Paris at this same moment of another Italian architect, the Theatine Padre Guarino Guarini. Bernini himself, however, paid a visit soon after his arrival at Paris to the church of the Theatine Order, Sainte Anne-la-Royale, begun in 1662 by Guarini. Paul de Fréart, Sieur de Chantelou, who served as guide to Bernini during his stay at Paris, relates that on June 14, 1665, Bernini "has been to see the church of the Theatines, and, when the Fathers asked him how it seemed to him, he made no reply except: 'I believe that it will turn out beautiful' [*Credo che riuscirà bella*]." The Theatine Fathers were apparently uneasy about the proportions of the dome planned for their church and remarked that the dome of the Gesù at Rome was too low, while that of Sant' Andrea della Valle, also in Rome, was higher. Bernini replied that "each had their own proportion; that one should not attempt to make the elevation only in proportion to the width, because otherwise it would be awkward to have to raise one's head so high;" and thus pointed out to them the importance of the relation of the dome to the interior space of the church. He added that "when their church would be covered, it will appear larger." There is, however, an implied criticism of the church in Bernini's later statement to them: "It would be good if they had some part on the façade which advanced, since churches which are entirely round, when one enters them, one ordinarily takes seven to eight steps, which prevents one from seeing the form well."² This principle is, of course, the one which Bernini himself had just been exploiting in his Italian churches at Castel Gandolfo and Ariccia.³

Shortly before Bernini's visit to the unfinished church of

DAVID R. COFFIN is a member of the faculty of art and archaeology of Princeton University.

Sainte Anne-la-Royale another Italian visitor, the young Bolognese priest Sebastiano Locatelli, had been much more lavish in his praise of the Theatine church. "It is believed without contradiction that the church of the Theatine Fathers will surpass in beauty the Val-de-Grâce and all the other churches. . . ."⁴ Locatelli was undoubtedly prejudiced by the warmth of his reception in 1664 from the Theatine Fathers at Paris who invited him to say mass in their church and almost persuaded him to become a member of the Order of the Clerks Regulars or Theatines. He also notes that "the plan of this new church is so bizarre that I have never yet seen any church to resemble it, even in part."⁵

Locatelli's description of the church as "bizarre," which he does not use derogatorily, may be the first time that this word was applied to Guarini's work, but it certainly was not the last time.⁶ Critics, from the late seventeenth century until the late nineteenth-century rediscovery of the power and charm of mature Baroque architecture, have repeatedly condemned Sainte Anne-la-Royale and Guarini's other buildings as "bizarre." The church at Paris, however, had to suffer not only the classic criticism of the Academy and later Neo-Classicism, but its religious and political associations were unfavorable to an impartial judgment by French critics and observers.

The money to commence the Theatine church at Paris came from the will of Cardinal Mazarin. It was Mazarin who introduced the Order of the Clerks Regular to France by inviting a small group of them to come to Paris from Rome in 1644. This Order, whose foundation in Italy in 1524 marks one of the earliest manifestations of the later Counter-Reformation, is popularly called the Theatine Order from the position as Bishop of Chieti of one of its founders, Gian Pietro Carafa, the later Pope Paul IV.

Mazarin bought a house in Paris in 1647 for his favorite Order at No. 23 on the Quai Malaquais, later called the Quai des Théatins (now the Quai Voltaire), on the south bank of the Seine opposite the Louvre.⁷ On August 7, 1648, the Theatines occupied their new house which contained a small chapel named Sainte Anne-la-Royale at the expressed desire of young King Louis XIV who was present at the consecration.⁸ The Order had the favor of the royal court

even after the death of Cardinal Mazarin but it suffered extremely in the eyes of the French because of its close association with him.

When the Cardinal had to flee France in 1649, the Theatine Fathers followed him in fear of the Parisians who expressed their hatred in a series of satires which made particular fun of the Theatines' use of small figures of saints in their preaching. Dubbing these figures "marionettes," one of the satires entitled the *Passport and Farewell of Mazarin* commences:

Farewell, then, poor Mazarin.

.....

Farewell, uncle of the Mazarinettes.

Farewell, father of the marionettes.

Farewell, author of the Theatines.⁹

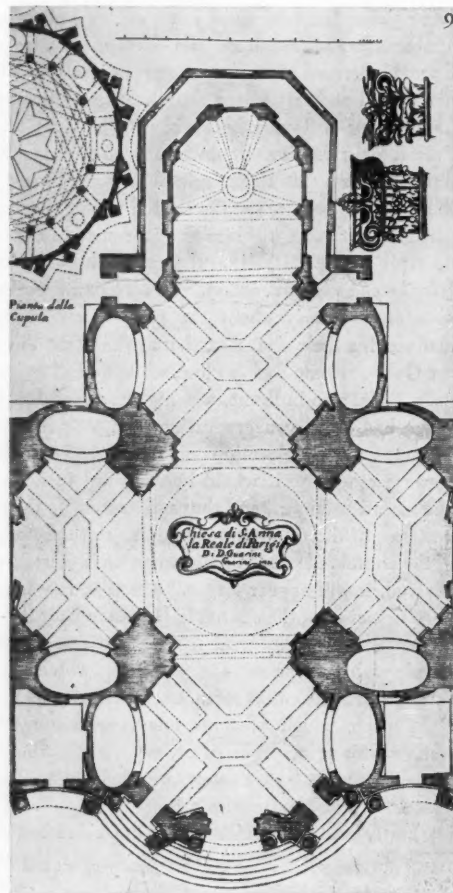
The Theatines were very interested in the use of theatrical and dramatic devices in their religious observances. In fact, by December 1648, about four months after the installation of the Order in its new house and chapel, all of Paris was attracted to the Theatine church "because of the representations held there in the form of a theater with a perspective at the end of which is exposed the Holy Sacrament of the altar and at one side is the Emperor Augustus with his court, on the other are the mathematicians who described the world according to the Gospel: *Edixit edictum a Caesare Augusto ut describeretur universus orbis* (Luke, II)."¹⁰ One immediately recalls the wonderful perspective drawings of the Jesuit painter Andrea Pozzo published at the end of the seventeenth century in his book on the principles of perspective in several of which are depicted perspective representations which were created at the end of Jesuit churches.¹¹ The Jesuits had been interested from an early period in the potentialities of the theater as a weapon in the Counter-Reformation, but the use by the Theatines at Paris of such theatrical elements within the sacred precincts of a church seems quite early during the Counter-Reformation for this growing development of the relationship between theater and religion.¹²

In 1659 the Cardinal Mazarin acquired another house on the Quai Malaquais, No. 25, contiguous to the Theatine house. Just before his death in 1661 he turned this house with some additional property at the rear over to the Theatine Order. A drawing in the Archives de France at Paris (L 960, No. 30), probably dating from 1659, is a plan for the transformation of these two houses into one for the Order and shows at the left the plan of the original Theatine house with the chapel of Sainte Anne-la-Royale.¹³ At the death of the Cardinal in 1661 his bequest of 100,000 *écus*¹⁴ permitted the Theatines to commence their church of Sainte Anne-la-Royale which was to replace the chapel in their house. As architect for the new church a member of the Theatine Order, Padre Guarino Guarini, was sent from Italy, since it was the custom of this religious order

to use its own members as designers of their buildings. Guarini, who was born at Modena in 1624, had entered the Theatine Order at the age of fifteen.¹⁵ The young Theatine then studied theology and philosophy at Rome from 1639 to about 1647. For the history of architecture what was more important in Guarini's education was that he was in Rome when the Baroque architect Francesco Borromini was working on the churches of San Carlo alle Quattro Fontane (begun 1638) and Sant' Ivo della Sapienza (begun 1642), although both churches were completed long after Guarini's departure from Rome. Guarini must have closely observed the creation of, at least, the church of San Carlo alle Quattro Fontane, whose fabric was finished in 1641—the façade, of course, was much later—thus permitting Guarini to experience and understand the complex interior space composition of Borromini's church.

Guarini's architectural activity began on his return to Modena where he served as overseer of the completion of

FIG. 1. Ste. Anne-la-Royale, Paris. Plan. (G. Guarini, *Architettura civile*, Pl. 9)



the Theatine church of San Vincenzo and designed a dome for the church which was not carried out in accordance with his ideas. Encountering difficulty with the ducal court at Modena, Guarini began to travel about Italy. By 1660 he was at Messina in Sicily where he taught philosophy and mathematics and where for the first time he was able to carry out complete architectural projects. He built three churches, the Annunziata, San Filippo, and the Chiesa dei Padri Somaschi, all of them destroyed by the earthquake of 1908. During the summer of 1662 he returned briefly to Modena because of the impending death of his mother.

It must have been at this moment that Guarini was called to Paris to build the Theatine church of Sainte Anne-la-Royale, or perhaps he was already on his way north making only a temporary stopover at Modena. The Order at Paris had already purchased the land for the new church on June 2, 1661, for 72,000 livres,¹⁶ thus expending for the

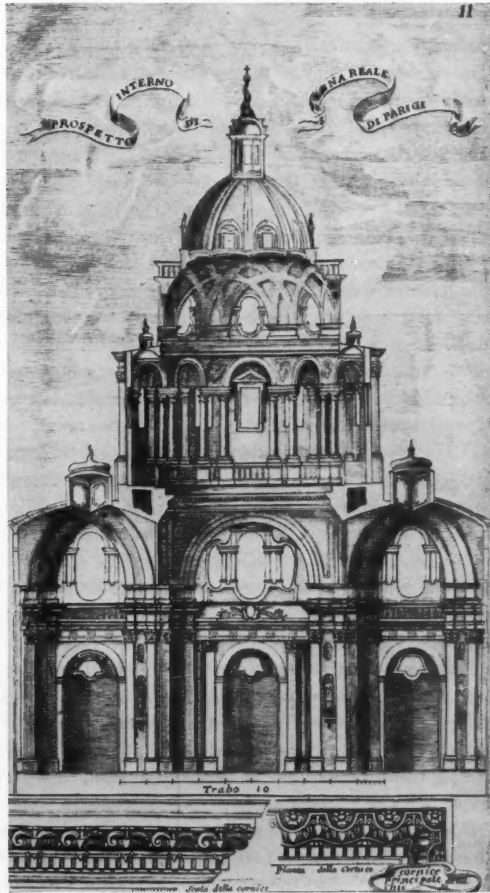
land almost one fourth of Mazarin's bequest. This land was situated next to the house of the Order. On November 28, 1662, the Prince de Conti laid the foundation stone in the name of King Louis XIV,¹⁷ thus leaving an interval of about four months for Guarini to make his preliminary designs for the new church.

The ground plan of Sainte Anne-la-Royale is in the form of a Greek cross (Fig. 1). However, as almost all the walls, piers, and pilasters are set on a 45-degree diagonal, in plan the Greek cross seems to be composed of five overlapping or interpenetrating squares set on the diagonal. Each of the four arms of the cross is then flanked by elliptical chapels. The idea of a Greek cross plan created by the interpenetration of five geometric forms is slightly reminiscent of the much subtler composition based on ellipses which Borromini used in San Carlo alle Quattro Fontane at Rome and which was built during Guarini's residence as a student at Rome. In Guarini's design the interpenetra-

FIG. 2. Ste. Anne-la-Royale, Paris. Elevation.
(G. Guarini, *Architettura civile*, Pl. 10)



FIG. 3. Ste. Anne-la-Royale, Paris. Section.
(G. Guarini, *Architettura civile*, Pl. 11)



tion of forms can only have been apparent in terms of the plan of the church, since the volumes of the various parts of the interior were kept distinctly apart through their enclosing domes, vaults, and arches. But the fact that Guarini is beginning to be aware of the possibilities of interpenetration is important when one considers his development of this spatial conception in the later works of San Lorenzo or the chapel of the SS. Sindone at Turin.¹⁸ In comparison to Borromini's architecture what is more important is the subtlety of Borromini's spatial conception in contrast to the bolder but harsher compositions of Guarini. For example, Borromini's San Carlo depends upon the more complex and delicate form of the ellipse, while Guarini's two churches at Turin use the simpler circle or at Paris the square. Guarini does use the elliptical form in his buildings but generally in secondary or decorative elements, so at Paris, as we have noted, the flanking chapels are elliptical.¹⁹

That Borromini's church of San Carlo alle Quattro Fontane was the principal inspiration for Guarini is clearly apparent in the plan of the façade of the Parisian church. It is serpentine with two concave side bays flanking the central convex portion just as in the earlier Roman church.²⁰ This means, of course, that all the columns defining the sections of the façade are set on an angle in respect to the general frontal plane of the façade. Only the two columns²¹ flanking the central portal are arranged with their axes in relation to the segment of the circle on which the concave center of the church is organized. The pairs of columns which frame the outer concave bays are naturally on axes forming the radii of the segments of the circles which create the concave walls. There are, however, two other pairs of columns which are on the intermediate bays and which flank two side portals into the central vestibule which forms one of the arms of the Greek cross. These intermediate columns are set against the surface of the projecting central portion of the church façade, but their axes are not related to the segment of the circle which defines the convex central section, as are the two columns flanking the central portal. The intermediate columns, on the other hand, have their axes forming radii of the circles which define the outer concave bays, so that these columns are meant to play the full role of intermediate columns.

On the exterior the façade elevation (Fig. 2) presents a layer cake arrangement of five superimposed parts, the upper three of which compose the dome and its drum. In physical dimensions the church was intended to be quite large,²² but because of the several layers of stories and the rather complicated ornamental detail, the appearance of the façade of the church, at least in the print in Guarini's book, is not very monumental.

The most unusual features of the Parisian church were those of the dome and its drum, both on exterior and interior. The drum on the exterior, as is visible in its plan

(Fig. 1), was an octagon but with each of the eight faces concave in form. To complicate the plan of the drum further the eight points where the concave surfaces should have met were replaced by reëntrant angles, so that the entablature was constantly coming out to a point and breaking back. On the interior (Fig. 3) this drum was surrounded by a gallery composed of a series of Palladian motifs, so that the light from the windows in the drum would be slightly filtered before entering the crossing of the church. The dome itself was divided into two parts. On the exterior the lower part of the dome was hidden by an attic, circular in plan. Above the attic rose a small dome with eight exposed ribs, capped by a lantern which bore a fantastic helicoidal spire with globe and cross. Again there is a slight analogy in the work of Borromini at Rome, that is, the dome of Sant' Ivo della Sapienza.²³ The lower half of this dome is masked by a high attic of swelling convexities, while the lantern terminates in a spiral walk leading to the openwork metal finial with globe and cross.

The design of the interior of the dome of Sainte Anne-la-Royale is even more striking and difficult to describe. The upper part of the dome, which is visible as a dome also on the exterior, is simply a somewhat pointed single-shelled dome with eight ribs. It is the lower section, the part hidden on the exterior, which is unusual. It too is a domical form created by a series of interlacing pairs of semi-circular ribs which leave an open area in the center closed by the simpler dome above. The plan of the dome (Fig. 1) perhaps explains this arrangement of ribs better than any description. It shows pairs of ribs springing some distance above the paired columns of the gallery but meant to match these columns. These ribs then vault over the next pair of supports to the succeeding pair. This alternation of pairs of supports and ribs, of course, creates an interlacement of ribs. Of equal interest are the pairs of pointed arches which result from this interlacement and which correspond at the upper level to the semi-circular arches of the Palladian motifs in the gallery below. It is in the area beneath these pairs of pointed arches that are placed the viol-shaped windows which are visible on the exterior in the attic concealing this complicated domical form.

The use of the interlaced ribs and resultant pointed arches is naturally very unusual at this moment in the development of architecture which still relied upon the principles of classic architecture. Guarini, however, as his architecture indicates, felt no compulsion to consider the classic principles as rules. He observes later in his *Architettura civile* that "architecture can correct ancient rules, and invent new ones."²⁴ In fact, "in order to keep the proportions required by appearance, architecture ought to depart from rules, and from true proportions."²⁵ As a result, Guarini even expresses a sympathy for Gothic architecture finding it "worthy of much praise,"²⁶ and in a chapter describing Gothic vaults he notes that "these vaults

are no longer in use but they could sometime come into use."²⁷

In the later church by Guarini of San Lorenzo at Turin (1668–1687) the central space is also spanned by eight pairs of ribs, but, unlike the Parisian church, at Turin the two ribs composing each of the pairs flare out from one another at the springing and intersect other ribs, all resulting in an open octagon at the center which is capped by a lantern. It has been suggested that this extraordinary dome is a result of a visit to Spain, where he could see an almost identical dome in the addition of El Hakam II to the Islamic Mosque at Cordova.²⁸ However, it has not been noted that Guarini presumably used this same type of dome much earlier in the Chiesa dei Padri Somaschi at Messina in Sicily where the architect was teaching from 1660 to 1662. At least in Guarini's later book the design of this church, destroyed in 1908, shows such a dome. Of course, Sicily had Islamic architecture, but I cannot find any other example of such an Islamic dome outside of Cordova. However, since Sicily was in the possession of Spain at this time and, therefore, in close cultural contact, it is probably about this time that Guarini became aware of the Cordovan dome. Whatever and whenever the source of the Turin dome, it certainly seems to be Guarini's stay in Sicily which influenced the form of the ribs in his church of Sainte Anne-la-Royale in Paris. The use of semi-circular arched forms which intersect one another so as to create a series of pointed arches is to be found as decoration on churches at Palermo, Monreale, and Cefalù in Sicily.²⁹

The history of the construction and preservation of Sainte Anne-la-Royale is one of difficulties and disasters, as is true of all of Guarini's work except in the region of the Piedmont in Italy. Already by 1666 the money from Cardinal Mazarin's bequest was exhausted, and Guarini was accused for the next fifty years of planning with too great ambition a church which could never have been completed on the basis of the original bequest, while the Duke de Mazarin, the Cardinal's heir, was apparently unwilling to continue the interests of his benefactor.³⁰ Apparently no more work was done on the Theatine church until the eighteenth century, and the sixth edition of Brice's description of Paris in 1713 claims that only about a third of the original design was executed, "which appears from afar as an unformed mass, or as a ruin of some building of consequence which has been destroyed by the long course of several years."³¹ Perhaps it is the unfortunate experience of Sainte Anne-la-Royale that inspires Guarini's later warning that: "The architect should proceed discreetly. Since he should aim at the convenience of whosoever builds, if he executes it at such expense that either he cannot finish the design or, completing it, may impoverish the builder and make him a beggar, that certainly will not turn out profitably but, on the contrary, will be seriously troublesome for him who should enjoy it."³²

The church remained in this condition from 1666 to 1714, when a lottery was authorized to accumulate funds to finish it.³³ The work then progressed fairly quickly so that it could be dedicated finally on December 21, 1720,³⁴ but the eighteenth-century work was not a fulfillment of Guarini's original designs. The recommencement of construction was made after a new design furnished by the French architect Lievain, despite the fact that a wooden model of the section of the church designed by Guarini was still preserved in the library of the Theatine Order in 1787.³⁵ The reason offered by the eighteenth-century writers for the change in design is that the original project was too expensive for even the new funds brought in by the lottery of 1714 and that it was too large for the site.³⁶ One wonders whether there was not also active the distaste of the classic eighteenth century for Guarini's project which many of the eighteenth- and early nineteenth-century writers evince,³⁷ as well as the undoubted difficulty for any architect at that time to carry out the original design of the fantastic dome.

The revisions made by Lievain in completing the church are preserved, at least in plan, in J. F. Blondel's *Architecture française*.³⁸ This plan (Fig. 4) reveals that the central four piers of the Greek cross plan and the two arms of the cross on the east and west sides of the church were already constructed following Guarini's design, likewise the elliptical chapels flanking each of these arms. Lievain, however, changed the basic design from a centralized Greek cross to a longitudinal plan by replacing the other two large arms with smaller apsidal arms. This meant that the axis of the church from entrance to altar was shifted from the north-south direction to the east-west orientation, and the chief altar was located in the west arm of the old church. The most unusual features in Guarini's design, the dome and the serpentine façade, were thus eliminated. This resulted in a building apparently much more acceptable to eighteenth-century standards of religious architecture. In fact, as Blondel's plan of 1752 reveals, there was little or no visible exterior to the church, since private houses and the house of the Theatine Order surrounded the church on all four sides.

The entrance to the church was only solved later in the eighteenth century. Père François Boyer of the Theatine Order was chosen Bishop of Mirepoix in 1730, and soon held important positions in the royal court as Preceptor of the Dauphin and later Almoner of Madame la Dauphine. It was he who then donated the money for the main portal of the church erected on the Quai des Théatins in 1747³⁹ and which was connected to the nave by a long vestibule debouching in the small elliptical chapel at the north side of what was originally the eastern arm of the church.⁴⁰ The architect was Pierre Des Maisons, who also designed a less important exit with a similar long vestibule or passageway leading to the Rue de Bourbon (now Rue de Lille).

The French Revolution led to the suppression of the Theatine Order, whose only house in France was the one next to Sainte Anne-la-Royale at Paris. A drawing in the Archives de France at Paris (F¹³ 849) presents a plan of 1795 to transform the church into a storehouse for military supplies by erecting two stories of wooden galleries in the

FIG. 4. Ste. Anne-la-Royale, Paris. Plan in 1752. (J. F. Blondel, *Architecture française*, No. XXX, Pl. 1)

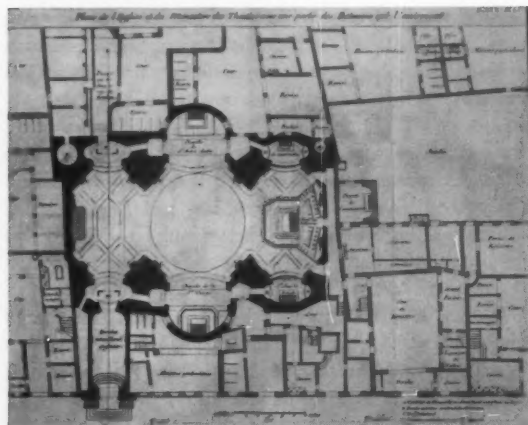


FIG. 5. Palace, Paris. Plan. (G. Guarini, *Architettura civile*, Pl. 23)

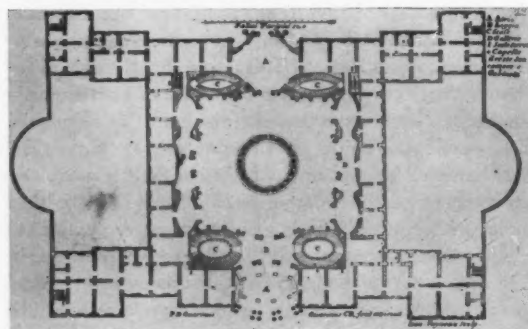
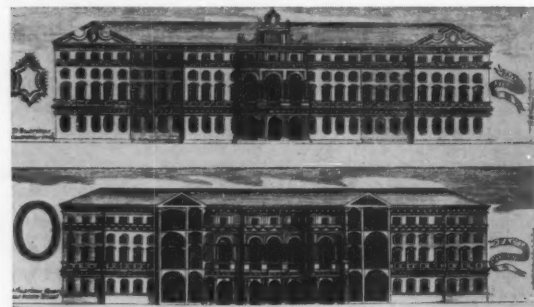


FIG. 6. Palace, Paris. Elevation and section. (G. Guarini, *Architettura civile*, Pl. 24)



interior. This plan of the church resembles in general the earlier eighteenth-century one of Blondel (Fig. 4) except that the passages from the small elliptical chapels and vestibules into the larger semi-circular chapels flanking the nave are omitted, but the style of the 1795 plan is more diagrammatic and symmetrical than Blondel's and probably less accurate. About 1800 the old church was converted into a theater or playhouse, but only balls and fêtes were held there, until in October 1815 the Café des Muses was opened in the structure. Finally, from 1821 to 1823 the desecrated church was gradually demolished⁴¹ and private houses appeared on the site, leaving as the sole evidence of the church its eighteenth-century exit at 26 Rue de Lille.⁴² Thus there disappeared from Paris apparently the only artistic product of Guarini's trip to France. At least by 1668 the Theatine architect was in Turin receiving an annual stipend as ducal engineer.⁴³

There is preserved, however, one other small result presumably of Guarini's visit to Paris. In his later book *Architettura civile* (1737) there are two plates (Nos. 23 and 24) presenting the plan, façade, and section, the latter entitled *Faccia interiore*, of a palace which bears no identification. That this project was produced while Guarini was in Paris is, I believe, proved by the architectural scales which are indicated on the plates. The plan (Fig. 5) has an architectural scale labelled "Palmi Parigi 120" and the elevations "Pi di Parigi 60" or "P d Parigi 60," that is, *piedi di Parigi* (Fig. 6). Since the other designs in Guarini's book are accompanied by the various local scales of measurement which were in effect in each of the cities or regions for which the buildings were created,⁴⁴ the Parisian scale on the depictions of the unidentified palace suggest immediately that this project was made during Guarini's stay at Paris from 1662 to about 1666. Beyond this I cannot at the present suggest any further identification.⁴⁵

The plan of the palace shows roughly a square body with wings projecting from the ends of the two principal façades, so that these two façades are almost twice the length of the central body. The central portion of the palace then surrounds a square interior court with elliptical stairs located toward the corners of the interior court. This description of an almost square palace with interior court having stairs in each of its corners suggests in a rough manner the projected plan for another great palace at Paris. That is the third design which Bernini prepared for the royal palace of the Louvre at Paris (Fig. 7). Of course, the differences between the two plans are more important than the loose similarity, but, since the Louvre plan is the one that Bernini prepared in Paris during his visit in 1665, it seems very likely that Guarini was influenced by the design. This project of Bernini was soon engraved by Marot, thus making it available to the world, but it is also possible that Guarini may have had contact with Bernini's assistant, Mattia de Rossi, who remained in Paris after Bernini's

departure in order to continue the work on the palace of the Louvre.⁴⁶

One of the principal differences between the two plans is that, while Bernini composes his design entirely in terms of rectangular forms, Guarini has managed to insert elliptical forms within a plan which is still basically rectangular in totality and elements. One of the entrance vestibules in Guarini is an ellipse cut off at each end. This elliptical atrium then results in a swelling entrance pavilion on the façade. However, the elliptical atrium is probably also derived from Bernini's work on the Louvre, since his first design for the palace, now preserved in Paris,⁴⁷ has exactly that form as the nucleus of the center of the façade. Even more important in Guarini's plan are the four elliptical stairs toward the interior court which cause the ends of two of the interior walls to swell out into the court. These stairs are then matched by elliptical sections of the side galleries (D in the plan) which do the same for the side interior walls. The central sections of each of these interior walls, on the other hand, are concave, so that the interior court walls tend to be serpentine in plan. Actually, however, when one examines the plan and cross section in detail one realizes that the transformation from convex to concave curves is not a continuous one but a juxtaposition of the curves with a break in the cornice at the junction of the curves. This is typical of the distinction between Guarini and his mentor Borromini. Guarini always preserves more of the independence of the elements of his design, whereas Borromini more than probably any other architect in history is able to achieve the most complete fusion of all the parts or elements of his design without ever losing any of the individual elements.

If this project for a palace by Guarini was formulated during his Parisian stay, as I have suggested, it is instructive to compare this design with the plan of the Palazzo Carignano (Fig. 8) which Guarini created in Turin after his departure from Paris (begun 1679). In the later palace at Turin the elliptical atrium is the kernel of the organization of the whole central section of the palace so that the nearby passages and stairs of honor follow the elliptical form and even carry it into the wonderfully dynamic façade of the palace. That the elliptical atrium and the stairs of honor were in Guarini's eyes the essence of the design is borne out by the series of his drawings published by Brinckmann in which Guarini struggled with the achievement of his solution. The scheme which Brinckmann designates as the earliest in the development⁴⁸ has a rectangular entrance atrium divided into three aisles by coupled columns and flanked on one side by an elliptical stair set toward the corner of the interior court and on the other side by a rectangular stair cage, the two dissimilar forms probably being alternates. Such a plan recalls the layout in Guarini's Parisian project for a palace (Fig. 5). The second design for the Palazzo Carignano⁴⁹ eliminates the

corner staircases and introduces an elliptical entrance atrium with similar salon above, but this idea also existed in the presumably earlier Parisian plan. Like the Parisian prototype, the second drawing for the Palazzo Carignano has the elliptical room against the façade with the stairs arranged toward the court, and it is only in the later drawings that the positions of the atrium and the stairs are transposed.⁵⁰

The elevation of the Parisian palace (Fig. 6) when compared with Guarini's Piedmont elevations, as in the Palazzo

FIG. 7. The Louvre, Paris. Plan by Bernini.

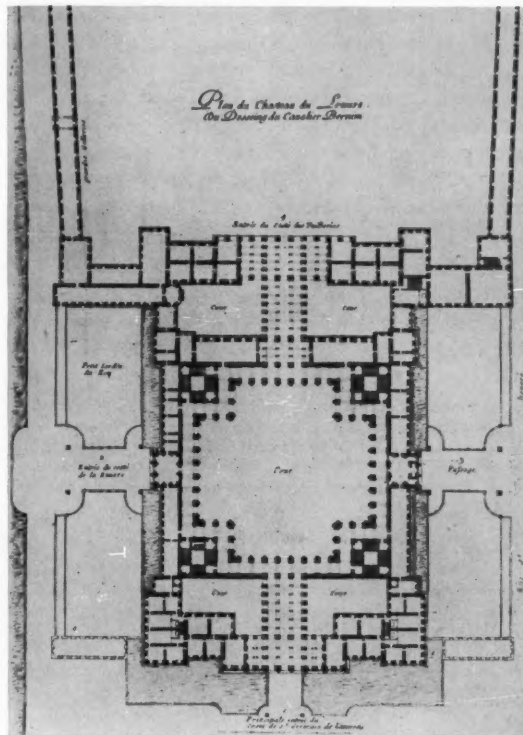
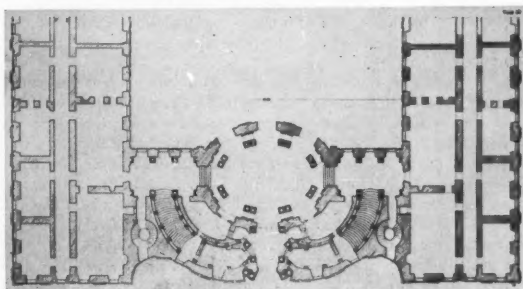


FIG. 8. Palazzo Carignano, Turin. Plan.



Carignano and the Collegio de' Nobili (now the Accademia delle Scienze) in Turin and the Castello Reale at Racconigi,⁵¹ betrays its earlier date in the decorative elements such as the window frames. In the former, only the minor windows of the ground floor and the small upper windows have volute pediments which resemble at all the elaborate window pediments and jamba of the Piedmont architecture, while the windows of the *piano nobile* in the Parisian design have classic segmental pediments.

The two architectural products of Guarini's visit to Paris, Sainte Anne-la-Royale and the palace design preserved in his *Architettura civile*, are certainly not as developed as the very bold Baroque conceptions which Guarini later executed in the Piedmont, but these earlier examples, as we have seen, do contain some of the seeds of his later projects. In addition to their importance in this respect, they represent the moment when Guarini came into contact with the second great Italian architect of the Baroque, G. L. Bernini, whose influence I believe is visible in the unexecuted palace project, but it was always Bernini's rival, Borromini, who exerted the more perma-

nent influence. In comparison with Borromini the Theatine Guarini has little of the former's subtlety. Guarini's dictum that "architecture . . . depends upon geometry"⁵² pervades his work too much. His dominating interest in the mathematical problems which later in the history of mathematics are systematized as descriptive geometry⁵³ causes Guarini to preserve as independent forms those geometric shapes with which he composes. At the same time, in the full Baroque tradition of Borromini, Padre Guarini is concerned with the intimate relationships between these forms without having the artistic ability to be able often to carry them out effectively. The series of drawings for the center of the Palazzo Carignano bear witness to Guarini's struggle with this artistic problem of relationship, and, although the executed solution is most fascinating, the relationship between the central part of the palace and its wings is quite perfunctory. Guarini in his boldness in maneuvering forms is sometimes more immediately attractive than Borromini, but his art is more obvious and less rewarding to a long and detailed examination.

PRINCETON UNIVERSITY

1. L. Mirot, "Le Bernin en France," *Mémoires de la société de l'histoire de Paris et de l'Île-de-France*, XXXI (1904), 210.

2. P. de Fréart, Sieur de Chantelou, *Journal du voyage du Cavalier Bernin en France*, ed. by L. Lalanne (Paris, 1885), pp. 33-34.

3. Chantelou's record of Bernini's comments during the visit to Sainte Anne-la-Royale is quoted in part in respect to the churches at Castel Gandolfo and Ariccia by H. Brauer and R. Wittkower, *Die Zeichnungen des Gianlorenzo Bernini* (Berlin, 1931), pp. 116 and 124, note 2.

4. A. Vautier, *Voyage de France, Moeurs et coutumes françaises (1664-1665): Relation de Sébastien Locatelli* (Paris, 1905), p. 141.

5. *Idem*.

6. E.g., G. Brice, *Description de la ville de Paris et de tout ce qu'elle contient de plus remarquable* (6th ed.; Paris, 1713), III, 216.

7. M. Dumolin, *Études de topographie parisienne* (Paris, 1929), I, 296.

8. J. Bouillart, *Histoire de l'abbaye royale de Saint Germain des Prez* (Paris, 1724), p. 242.

9. C. Moreau, *Choix de mazarinades* (Paris, 1853), I, p. 50. Two other Mazarinades refer to the Theatine "marionettes" (*op. cit.*, pp. 100 and 300).

10. M. Chéruel, *Journal d'Olivier Lefèvre d'Ormesson (Collection de documents inédits sur l'histoire de France, IX)* (Paris, 1860), p. 598, note 1. This reference is given in L. Hautecœur, *Histoire de l'architecture classique en France*, II (Paris, 1948), p. 245, where there is the best and most complete consideration of Sainte Anne-la-Royale.

11. A. Pozzo, *Perspectiva pictorum et architectorum* (Rome, 1693), Figs. 60 and 71; the latter used in the Gesù at Rome in 1685.

12. For the Jesuit theater see E. Boyssé, *Le théâtre des Jésuites*, (Paris, 1880); W. Flemming, *Geschichte des Jesuitentheaters in den Landen deutsche Zunge (Schriften der Gesellschaft für Theatergeschichte, XXXII)* (Berlin, 1923); J. Müller, *Das Jesuitendrama in den Ländern deutscher Zunge vom Anfang (1555) bis zum Hochbarock (1665)* (2 vols.; Augsburg, 1930), and for the relationship between the theater and church decoration see H. Tintnot, *Barocktheater und barocke Kunst* (Berlin, 1939), pp. 270-297.

There are some accounts of plays and scenic devices being used

in churches earlier than Sainte Anne-la-Royale, for example, at Cologne in 1627 and occasionally in S. Salvator at Augsburg early in the seventeenth century (W. Flemming, *op. cit.*, pp. 92 and 107), but the Jesuit drama was usually performed within a Jesuit college or school.

Hautecœur (*op. cit.*, p. 247) quotes accounts later in the seventeenth century to show the increasing theatrical interests at Sainte Anne-la-Royale, which by 1685 was accused by the Archbishop of Paris as "a veritable opera" with music and chairs for rent.

13. For the date of the purchase of No. 25, Quai Malaquais, see M. Dumolin, *op. cit.*, pp. 296-297.

14. The Comte de Brienne gives this figure in his memoirs written by 1684 (P. Bonnefon, *Mémoires de Louis-Henri de Loménie, Comte de Brienne, dit le jeune Brienne* [Paris, 1917], II, 46-47) and it is repeated in most of the eighteenth-century guides to Paris, for example, G. Brice, *op. cit.*, p. 215, although the later guides give the amount as 300,000 livres. The will of Mazarin, as printed in the *Oeuvres de Louis XIV* (Paris, 1806), VI, 297, only notes that the Cardinal "confirme la donation aussi par lui faite aux religieux Théatins de la maison Sainte-Anne la Royale."

15. The biography of Guarini is given in T. Sandonnini, "Il padre Guarino Guarini modenese," *Atti e memorie delle RR. deputazioni di storia patria per le provincie modenesi e parmensi*, ser. 3, V (1888), 483-534.

16. M. Dumolin, *op. cit.*, p. 269.

17. A. M. Le Fevre, *Calendrier historique et chronologique de l'église de Paris* (Paris, 1747), pp. 295-296. Actually the foundation stone had already been laid and blessed earlier, on November 7, 1662, by the Bishop of Luçon, see [J. B. M.] Jaillot, *Recherches critiques, historiques et topographiques sur la ville de Paris, depuis ses commencemens connus jusqu'à présent* (Paris, 1775), V, 74.

18. See especially A. E. Brinckmann, *Theatrum novum Pedemontii* (Düsseldorf, 1931), pp. 202 and 231.

19. Locatelli (A. Vautier, *op. cit.*, pp. 141-142) notes the unusual location of the altars in the center of the chapels instead of against the walls at Sainte Anne-la-Royale. The prints in Guarini's book (Figs. 1 and 3) do not show in any way this idea, but there must have been some intention since Locatelli knew the Theatines so well and must have discussed the use of the church with them.

20. The façade of San Carlo alle Quattro Fontane was executed 1665-1668.

21. The façade elevation reproduced in Guarini's book (Fig. 2) has pairs of columns on each side of the central entrance, unlike the plan (Fig. 1) which has only single columns.

22. The dimensions of the church in Guarini's book do not seem to agree with those of the building as executed, but both indicate a large church. The scale on the façade elevation in Guarini's book is in terms of "Tuese," presumably the French *toise* (1.949 m.). By this scale the church would be 26½ *toises* high (over 51 m.) and 18 *toises*, 4 *pieds*, wide (a little over 36 m.). The eighteenth-century plan in J. F. Blondel, *Architecture française* (Fig. 4) and the 1795 plan, both discussed later, have the width of the actual church as 20½ *toises* (40 m.).

23. Sant' Ivo was begun in 1642, while Guarini was a student at Rome (E. Hempel, *Francesco Borromini* [Vienna, 1924], p. 114), and was roughly completed as far as the lantern in 1650, the work of decoration and completion lasting until 1660. Thus, Guarini could either have known of the Roman church in the forties from Borromini's plans or studied the completed church perhaps during his trip north to Modena from Sicily in 1662.

Actually the section of Borromini's earlier dome of San Carlo alle Quattro Fontane resembles that of Sant' Ivo della Sapienza with the lower part of the dome concealed and a lantern at the top, but San Carlo does not have a spiral finial.

24. G. Guarini, *Architettura civile* (Turin, 1737), p. 5.

25. *Ibid.*, p. 6.

26. *Ibid.*, p. 7.

27. *Ibid.*, p. 186. He defines and discusses all the different types of vaults on pp. 183-190.

28. S. Giedion, *Space, Time and Architecture* (Cambridge, 1941), p. 60. T. Sandonnini, *op. cit.*, p. 500, also suggests that it is in the period between 1666 and 1668, just before Guarini settled in Turin, that he may have gone to Lisbon to build his church of Santa Maria de la Divina Providencia, which might have permitted Guarini to see the mosque at Cordova. With our present limited knowledge of Guarini's life, a visit to Lisbon at this time is simply an assumption, as Sandonnini indicates, and the church at Lisbon, which was destroyed in the eighteenth century, could have been erected after Guarini's design without a visit of the architect to Portugal. For the date of the Lisbon church see R. C. Smith, Jr., "João Frederico Ludovice an Eighteenth-Century Architect in Portugal," *Art Bulletin*, XVIII (September 1936), pp. 275-276, where Smith suggests that the date is sometime after 1662, since the Portuguese church seems derived from the Parisian one and that Guarini probably did not visit Lisbon but sent plans for it.

29. G. V. Arata, *L'architettura arabo-normanna e il rinascimento in Sicilia* (Milan, 1925), Pls. 4-6, 35, 38-40, and 62.

30. T. Sandonnini, *op. cit.*, p. 499 quotes a section of a letter to this effect written in 1666 by the Abbot Caprara to the Cardinal d'Este.

31. G. Brice, *op. cit.*, p. 217.

32. G. Guarini, *op. cit.*, p. 4. Guarini then continues by quoting as authorities for this danger Luke XIV, 28, and Vitruvius, Bk. IX.

33. J. F. Blondel, *Architecture française* (Paris, 1752), (reimpression ed. by J. Guadet), I, Bk. ii, 290.

34. J. Bouillart, *op. cit.*, p. 242.

35. L. V. Thiéry, *Guide des Amateurs et des étrangers voyageurs à Paris* (Paris, 1787), II, 537.

36. A. M. Le Fevre, *op. cit.*, p. 296, and J. F. Blondel, *op. cit.*, p. 290.

37. L. V. Thiéry (*op. cit.*, p. 537), who reports the existence of a model of Guarini's design, is the exception when he remarks, "Ce modèle, exécuté en bois, fait regretter que cette Eglise n'ait point été terminée."

38. J. F. Blondel, *op. cit.*, I, Bk. ii, No. XXX, Pl. 1.

39. A. M. Le Fevre, *op. cit.*, pp. 296-297 and J. F. Blondel, *op. cit.*, I, Bk. ii, 291.

40. The portal on the Quai des Théatins is illustrated in J. F. Blondel, *op. cit.*, I, Bk. ii, No. XXX, Pl. 2.

41. J. A. Dulaure, *Histoire physique, civile et morale de Paris, depuis les premiers temps historiques jusqu'à nos jours* (4th ed.; Paris, 1829), VI, 327.

42. A photograph of the extant portal is reproduced in M. Dumolin and G. Outardel, *Paris et la Seine* (Les églises de France) (Paris, 1936), p. XVIII.

43. T. Sandonnini, *op. cit.*, p. 501. In a sense perhaps a more permanent product of Guarini's stay at Paris was his attempt at a synthesis of philosophy in his book *Placita philosophica* published at Paris in 1665.

44. For example, Santa Maria de la Divina Providencia at Lisbon is in *cane portoghesi*; the Annunziata of Messina uses *cane* or *palmi messinesi*; and San Lorenzo and the Palazzo Carignano of Turin and the church at Oropa have a scale of measurement labelled as *trabucchi* or *trabo*, which Guarini uses in the Piedmont. In the drawing of the façade and section of the plan of the Castello Reale at Racconigi attributed to Guarini the scale is also in *trabucchi* (A. E. Brinckmann, *op. cit.*, Pl. 116), while the drawings of a window perhaps for the Collegio de' Nobili in Turin has *piedi di piemonte* (*ibid.*, Pl. 240b). The plate in the *Architettura civile* of the façade of Sainte Anne-la-Royale at Paris, as we have noted, specifies the scale as *tuese* and *piedi*, which are undoubtedly the Parisian *toise* and *ped*. The one exception in this correspondence between locality of building and architectural scale is explicable. The section of Sainte Anne-la-Royale has its measurements in terms of the *trabo*, but it must be recalled that these plates were prepared while Guarini was in Turin. Therefore, for some reason he had to substitute, re-do, or supplement a drawing devised at Turin for the section of the Parisian church. Guarini discusses the relationships between some of the local measurements in the *Architettura civile*, pp. 43-44.

45. We might note that in the plan of one floor Guarini locates six chapels which seems somewhat excessive for a secular palace. Four of these chapels are private ones each located in one of the apartments which makes up one of the projecting wings.

46. At least occasionally, De Rossi must have attended mass at the Theatine church in Paris, see his letter of October 1, 1665, published in L. Mirot, *op. cit.*, p. 268, note 1: "Io quando hebbi visto questo retratto [portrait of Louis XIV by Varin], andai a messa alli Teatini, . . ." De Rossi was probably attracted to the Theatine church because all the members of this Order in Paris were still Italians, as Locatelli mentions (A. Vautier, *op. cit.*, p. 141).

It might be recalled also that even the English architect, Sir Christopher Wren, was able to obtain a brief glimpse of Bernini's plans when Wren was in Paris in 1665 (*The Wren Society*, XIII, 1936, 41).

47. H. Brauer and R. Wittkower, *op. cit.*, Pl. 175.

48. A. E. Brinckmann, *op. cit.*, Pl. 250. In this design the three-aisled entrance atrium of which only the central aisle has an entrance portal, the side aisles corresponding only to windows in the façade, seems derived from the Palazzo Farnese at Rome, but the first Louvre plan of Bernini (see above note 43) also had a secondary atrium in three aisles separated by coupled columns very like the first project for the Palazzo Carignano.

49. *Ibid.*, Pl. 251A.

50. *Ibid.*, Pls. 251B and 252A. Brinckmann (p. 77) suggests that this latter drawing shows French influence in its arrangement of antichambers flanking the elliptical salon and points to Guarini's stay in Paris as a source of this idea.

51. *Ibid.*, Pls. 116A, 240, 253, and 259.

52. G. Guarini, *op. cit.*, p. 3.

53. M. Cantor, *Vorlesungen über Geschichte der Mathematik* (Leipzig), III (1898), 13, and IV (1908), 593-594.

COBBLESTONE ARCHITECTURE OF UPSTATE NEW YORK

GERDA PETERICH

COBBLESTONE HOUSES, which are seen in abundance along the highways between Syracuse and Buffalo, have aroused the interest of many an architect and architectural historian and have given rise to much local enthusiasm and investigation. Little is known of the builders who built the many fine examples of rural architecture of upstate New York.¹ To complicate matters, in the study of cobblestone architecture information has to be obtained about masons in addition to carpenters and original owners. The worker in the field meets with an entanglement of local legend and inaccurate dates which have become firmly established. The territory to be covered is vast: From Erie to Watertown along the Great Lakes, to Albany in the East and to the Pennsylvania border in the South, not including the extreme outposts in Ohio, Michigan, Canada and Vermont. However, the greatest concentration of cobblestone architecture is found within a radius of roughly one hundred miles around Rochester.

Cobblestone Architecture

Cobblestone masonry is a regional technique expressed in the prevailing styles of the time from about 1828 to 1854 and used in domestic, civil and ecclesiastical buildings.² It is developed from the most easily accessible building material of this area, namely cobblestones. Cobblestone masonry has its origin in the geology of upstate New York and in traditions of rubble wall techniques imported from Europe, particularly from England. It served the demands of the pioneer farmers especially well, as the gathering of stones cleared their fields, and the building material could be accumulated at convenient times with the help of all members of the family. These houses, which are created from the soil on which they stand, are ideally suited to the climate of the region, and their stability is proved by the many remaining examples. Cobblestone masonry, which originally served as a mere convenience, gradually de-

veloped its own canons of beauty. The aesthetic appeal of cobblestone buildings depends upon the ingenious exploitation of the inherent qualities of the material.

Building Materials

Since cobblestone masonry is so closely wedded to the soil of the region, and since wall textures reflect geological features, it is necessary to mention briefly the geological structure of the area.³

The bedrock of the Great Lakes region consists of several strata of limestone, shale and sandstone. Upon this rests a layer of sand, clay and gravel deposited by glacial action. This glacial till contains the cobblestones which form our building material.⁴ Two types of cobblestones are encountered: The squarish "glaciated" cobblestone, and the more rounded "water-laid" cobblestone. Glaciated cobblestones are primarily found in the drumlin region east and south of Rochester,⁵ while water-laid drift predominates along Route 104, also known as Ridge Road East and Ridge Road West. These routes are old Indian trails which, as the name implies, went along a ridge formed by the shore line of glacial Lake Iroquois. It is along this path that we find the greatest concentration of cobblestone houses.

In addition to these cobblestones of glacial origin, glaciated or water-laid, there is a third type, the lake-washed cobblestone, found and gathered on the shores of present Lake Ontario. Their surface is as smooth as an eggshell and their shape a perfect round or flat oval. These qualities lend themselves to the most admirable masonry work.

Pioneer builders used not only the cobblestones of the area, but also other local materials, such as limestone, dolomite and sandstone for the solid stone members of the wall, and pebbles, sand and lime extracted from local limestone, for their mortar. It is known that the lime was slaked on the premises, while the burning of the lime was a commercial enterprise. Such names as Limekiln Road testify to this activity and have led to the discovery of a ruined kiln close to a cluster of cobblestone houses.

Masonry Techniques

With this assortment of raw materials pioneer builders

GERDA PETERICH is an associate in research at George Eastman House, Museum of Photography. Her photographic exhibit, *Cobblestone Architecture of Upstate New York*, is circulated by the American Federation of Arts. Portions of this paper were presented to the Central New York Chapter of the Society of Architectural Historians at the meeting held on October 15, 1955, at the University of Rochester.

and masons developed three distinct methods of laying up walls, as illustrated in Figures 1 to 3.

Fig. 1 shows a solid coursed rubble wall ("coursed" as distinguished from "random" rubble wall). Three vertical layers of glaciated cobblestones are interlaced. The outside shows fairly regular courses, while the inside is of an irregular pattern which originally was covered with plaster.

Fig. 2 shows a facing of lake-washed cobbles of sedimentary origin with bonding stones reaching into a rubble core. The facing stones are of irregular dimensions, but the outwardly exposed tips match perfectly in shape and size. The facing is likely to have been laid up along with the backing wall. Since backing walls most probably are constructed of materials found in the immediate neighbourhood, a great variety of compositions may be found. One is reminded of the Roman cement-core wall which made use of all locally available materials which would insure a strong cement. The facing too is reminiscent of the various Roman *opera* and their function of giving stability to the wall. However, contrary to the Roman techniques, the cobblestone facing remains exposed and is, in the manner of the various *appareils* of pre-Romanesque masonry, a means of wall embellishment.

Fig. 3 shows the technique which is most subject to destruction. A rubble wall, in this case of roughly hewn stone, is laid up first, and a mortar and cobblestone veneer is added separately. Cobblestones are small and there are no bonding stones. Once water penetrates behind this veneer and frost-wedging sets in, deterioration progresses rapidly. The region in which this technique has been used most widely (Greece, Parma and Hilton) shows a much higher percentage of patched walls than other localities. There are doubtless many variations of these three basic methods.

No records describing the manner in which the masons worked have as yet come to light. The techniques of rubble wall construction in general are commonly known and can be reconstructed from contemporary and modern masons' guides and handbooks. The only account specifically dealing with cobblestone technique that I have been able to find, occurs in a regionally published handbook and is as follows:

Cobbles. What is called cobblestone work looks very well in cottages. The walls are built of the roughest and most irregular stones, and the outside thickly coated with strong mortar into which are hammered wet cobblestones, forming regular horizontal courses of similar sized stones, the intermediate space being stuck with pebbles in as great variety of hues as can be obtained. [This passage is rather obscure.] But the quoins of this style of building should be regularly built up and bonded into the wall. They may be bush-hammered or hammer-dressed.⁶

A more recent manual tells us the following:⁷

*Cobblestone or "Niggerhead" Facing.*⁸ Retaining-walls, fences, and in some cases walls of dwelling-houses are built

faced with cobblestones. . . . To keep these stones straight and in line until the mortar hardens is a very difficult piece of work for the mason. A quick and easy method is to build a form of plank for the face of the wall . . . , and build the cobblestones up against this form. This will make a straight and even wall, such as can be obtained in no other way. After the mortar has hardened the form can be taken down and the joints between the cobblestones cleaned out and pointed.

A still later publication⁹ suggests that wet sand be put "in front of each stone as it is layed" to keep the stones clean. The sand will fall off when the board is removed.

In any case, the techniques were laborious and little work could be accomplished in one day. The weight of the mortar, which forms a large percentage of the wall, restricted the mason to two to three rows at a time in order to prevent sagging.

The above quotations pertain to the second and third techniques discussed; the first is a simple coursed rubble wall technique used for centuries in Europe as a backing for ashlar or, covered with whitewash, as a poor man's masonry in cottages and farm buildings.

Origin of Cobblestone Masonry

No definite links have been established between upstate New York cobblestone techniques and their possible origin. The second and third techniques, which incidentally give the wall the same outward appearance, seem to have been introduced somewhat later than the first. In several instances the names of masons who worked in these more refined techniques are known, and late examples show a craftsmanship which definitely appears to be the work of trained professional masons.¹⁰ But the origin of these masons is not known.

Although I have no proof of the following theory, I should like to suggest that techniques two and three originated at least partly in the English flintstone wall.¹¹ The following description of three types of flint wall must suffice:¹²

Large pieces (of flint) are sometimes split, chipped square and built in regular courses; (this technique is known today as "knapped" flint walling) or smaller flints are split, the split surface forming the face;¹³ or thirdly the flint pebble is used in one piece.

I have in my possession a recent photograph, taken to my specifications, of a church wall in Sussex (c. 1700) which illustrates the third technique of unsplit flint "pebbles" layed in straight rows showing the same jointing and pointing up between the stones as used in this region. The mortar, however, due to locally available materials, is coarser than is found anywhere here. I have been assured that the examples of this type of flint wall can be multiplied many times. It is therefore safe to assume that flint walling in the Southeast of England has a decided influence



FIG. 1. Cobblestone masonry. (Author)



FIG. 2. (Author)



FIG. 3. (Author)

on our regional technique. This does not exclude the possibility of other influences.¹⁴

Textures, Patterns, and Colors of Walls

There are innumerable modifications of textures achieved by any number of combinations of the following contributing factors: size, shape and surface of cobbles; number of courses per quoin (standard measure about 12 in. height); number of cobbles per horizontal unit-measure; angle of stone to join, and degree of protrusion of cobbles beyond the wall surface. However, most textures are variations of two basic types: the glaciated texture (Fig. 4) and the lake-washed texture (Fig. 5).

Among the designs which are encountered frequently is the herringbone pattern executed in both lake-washed (Fig. 6) and glaciated materials. As beautiful as this pattern is, it is often found relegated to sidewalls, porches or even a back wall. Herringbone courses can be laid up of stones in a variety of sizes, since the slant of the stone will compensate for its height. Apparently builders were not as impressed with this pattern as they were with the almost mechanical appearance of regular rows of small lake-washed cobbles which did not allow such freedom of handling.

There are two basic wall colors: yellow-gray is predominant in most glaciated textures which are composed of fragments of limestone, various granites, quartzites and some sandstone. Red, as of Medina sandstone, is the color of lake-washed textures with its variations from pink to brown. Unusual colors are found in walls composed en-

tirely of lake-washed cobbles of igneous origin. The Gothic House at Elbridge, for example, has a general tonality of greenish-gray.

Other important contributing factors in the variations of textures are the composition of the mortar, which varies from pebbly to sandy, and the jointing. Coarse pebbly mortar does not lend itself to fine tooling, therefore joints are shaped by the use of a trowel. In the finer mortars we find "V" joints and beads of machine-like perfection, which are obviously executed with a molding tool. There is remarkable inventiveness in the little tool marks between the stones. (All textures have been photographed to scale.)

Wall Embellishment

Nothing testifies more strongly to the builder's fine feeling for his material than the way in which he used the stone for wall embellishment. Patterns and color schemes are entirely derived from materials of the immediate neighbourhood and show strong regional variations. As might be expected, most care has been given to the appearance of the front wall. Close inspection proves that some embellishment is of functional as well as decorative value, serving for purposes of levelling and bonding.

As mentioned before, textures and wall embellishment show strong regional characteristics. The three main regions are the northeast region, covering the area along Lake Ontario and Ridge Road East; the western region along Ridge Road West, and the southern region comprising a wedge of about 90 degrees south of Rochester. The

latter is the largest but from a point of view of masonry the least interesting area.

It should be emphasized that this three-part division is a necessary simplification. Although characteristics of one region do not in general overlap another, distinctive features of smaller areas are equally outstanding.

Northeast of Rochester brownish-red is the general tonality of the building material. Along the lake smooth, lake-washed, red sandstone cobbles form the front wall of buildings, while frequently salt-and-pepper effects are found on the sides.¹⁵ The side walls may also be laid up of coarser cobbles gathered from the fields. In some cases the back wall is of roughly hewn fieldstone. An outstanding characteristic of the area around Alton is colored banding (Fig. 7). Courses of white and red cobbles alternate in various proportions, one to four, two to two, and other combinations. Further inland the cobblestones are larger and of the water-laid variety. Quoins, lintels, water tables and other solid members are of limestone.

West of Rochester we find much pinkish red combined with grays. The cleavage of Medina sandstone leads to long, flat cobbles which in one case have been used in a ragstone technique (Morton School House). Stones are large and irregular and herringbone bands are introduced as levelling courses. Lintels and quoins are of Medina sandstone; flat arch lintels are executed in red sandstone cobbles.

Buildings of the southern region show a tonality of yellow-gray. Limestones form a large proportion of the wall and cobbles are squarish. Limestone is the material for lintels and quoins.¹⁶ Walls are plain, without embellishment

by patterns or color schemes. Smaller stones are used in front up to five rows per quoin; side walls have three to four, and back walls as few as two rows to a quoin.

There is a fourth group which, for want of a better term, may be called the inter-regional group. The building material of these dwellings is not of local origin, but is brought many miles by oxcart from Lake Ontario. Stones are small, leading up to six rows to a quoin, and carefully selected for size and color. The jointing is done with a molding tool, and masonry, including the tooling of the solid wall members, shows high professional skill. Dwellings are large, proud structures with carefully executed architectural detail. Dates range from about 1848 onwards.¹⁷

Architectural Styles

Space does not permit an enumeration of all uses of cobblestone technique, but such utilitarian structures as smoke houses and garden walls are included. Village stores, blacksmith shops, an insurance building and a great many one and two-room country school houses of charming proportions in a simplified Greek style are found. Among the churches the most dignified are the First Baptist Church in Webster (Fig. 8), dedicated 1857, and the Baptist Chapel in Phelps, 1845. Delightful is the Quaker Meeting House in Scottsville (1834) with its separate entrances for men and women.

The majority of structures are domestic dwellings embracing the Post-Colonial, Greek Revival and Romantic Revival styles, with the Greek Revival predominant. Styles do not necessarily reflect a chronology of dates. Incon-

FIG. 4. Cobblestone masonry. Typical glaciated texture. (Author)



FIG. 5. Typical lake-washed texture. Red sandstone. (Author)

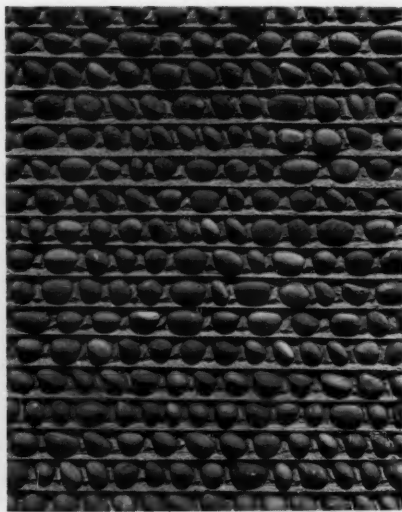
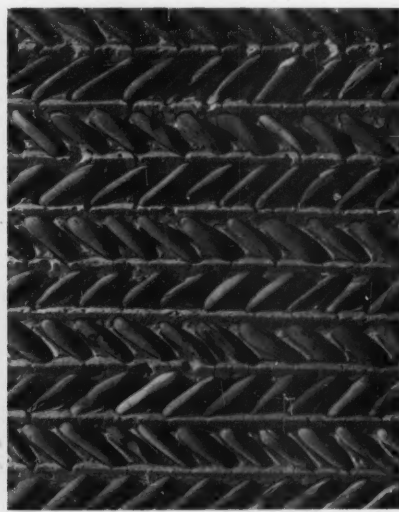


FIG. 6. Herring-bone pattern. Lake-washed red sandstone. (Author)



sistencies of styles are frequent. It is not the purpose of this study to discuss stylistic considerations, but a short description might be of interest.

The typical Post-Colonial cobblestone dwelling is the "blockmass" house with the five-bay front (Fig. 9) and the transom or elliptical fanlight over the entrance door.

The Greek Revival phase shows a variety of plans and elevations (Fig. 10). There is the one-story cottage with grilled frieze-windows, with or without entrance porch, and the story-and-a-half gabled cottage. The larger houses have frequently two stories and a one-story wing. They are two or three bays wide. The wing was often built first and served as winter quarters, while the "upright" was used during the summer and Sundays. Porticoed fronts and balanced wings are in the minority. Doric detail prevails. A fine example in the Ionic order is the Barron House in Geneva, 1848, with a temple front and balanced wings. Unique is a house at Holland Patent which has a tetra-style portico and columns of which are executed in cobblestone.

Examples of the Gothic are sparse. The cottage type is represented by the King House in Phelps, 1842, and the Baker House in Macedon, 1850. They are almost identical in their symmetrical composition with pointed window arches and a central gable piercing the roof. The Gothic

Munro House at Elbridge (Fig. 11), 1851, merits a short discussion. It is the only cobblestone house known to have been built by a professional architect, the Englishman Thomas Atkinson. The house was built for John Munro and is now inhabited by his grandson LeRoy Munro. The architect's handbooks are in the possession of his grandson, Mr. Earl T. Atkinson of Canandaigua. Thomas Atkinson who also built the Gothic cottage at 24 Van Anden Street, Auburn, apparently did not use a British publication, but seems to have been inspired by the A. J. Davis house for Wm. J. Rotch of Bedford, Massachusetts.¹⁸ Certain masonry detail suggests that the same workman who was engaged for the Munro House also did the Barron House and the J. Rippley, Jr., House both of Geneva. The interior of the Rippley House resembles that of the Munro House and might also be the work of Thomas Atkinson.

Documentary Sources

Fortunately some contemporary accounts are still available. Of greatest importance are the Pardee Papers in the Rush Rhees Library of the University of Rochester. The Pardee House, on Pardee Road in the town of Irondequoit, is a two-story Greek Revival structure with a fine entrance door. The front is of red lake-washed sandstone, unfortunately somewhat weathered. The McIntosh History of

FIG. 8. (Right) First Baptist Church, Webster, New York, dedicated 1857. Very small lake-washed red sandstone cobbles. (Author)

FIG. 7. Alton Church, New York (c. 1848). Colored banding. Red sandstone and white quartzite. (Author)

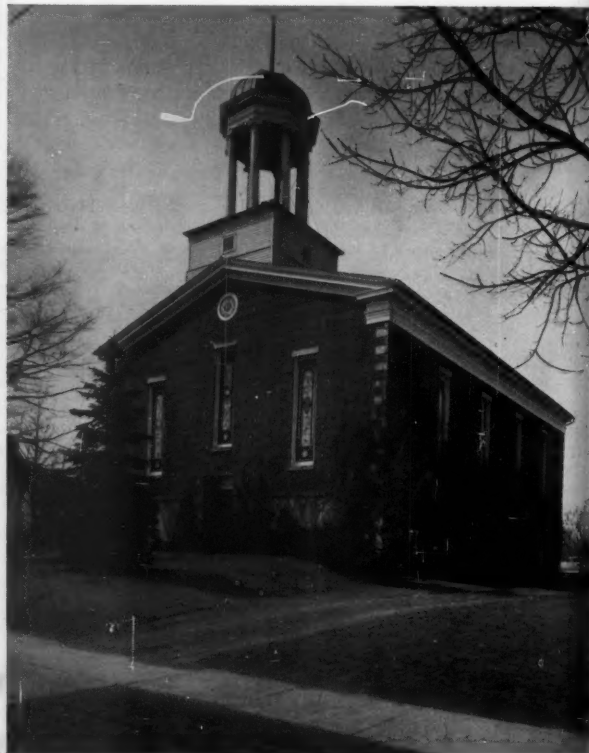
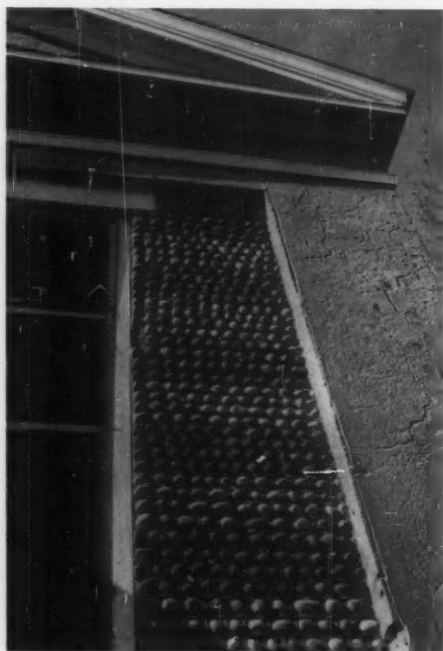




FIG. 9. Herendeen House, Farmington, New York. Datestone 1832. One of the earliest dated houses. Glaciated stone. (Author)



FIG. 10. Taber House, Castile, New York. Datestone 1844. (Author)



FIG. 11. Munro House, Elbridge, New York (1851). Lake-washed igneous cobbles traced to Oswego beach. (Author)

Monroe County of 1877 states that in April, 1839, Hiram Pardee was elected commissioner of highways. The house may be dated 1847, although there are entries as late as 1849, such as the following: "to cash for patterns and moldings \$5.12 by 1½ bushels buckwheat Paid." There are pages of interesting and important items which I cannot begin to reproduce. There is an account of payments to the mason Harry [?] Clark. He worked 92¾ days, his assistant 26½. Altogether the bill for masonry work was \$220.68. The front of the house is laid up of lake-washed cobbles, five rows to a quoin.

A much earlier account is preserved in a letter of P. P. Bonsteel of Victor, Ontario County, addressed to the *Cultivator* and printed in 1842.¹⁰ Mr. Bonsteel built his house in 1835. It has a five-bay front and a one story ell. "... The cellar wall 20 inches thick to first floor, drop off two inches

to second floor, then drop off two inches and extend out to top. . . I used the common stone lime, one bushel of lime to seven of sand. . . . Furnished all materials on the ground, and paid my masons \$3.75 per hundred feet. He furnished his own tenders and made his own mortar; built his own scaffolds, and tended themselves. I boarded them. . . . The stone I do not consider any expense as it frees the land of them. There is no painting to be done to it as is required of brick or wood. . . . I did not keep an exact account of my building, as the stone, sand, and lime were brought at leisure spells. . . ."

The house is kept up beautifully to this day.

Cobblestone architecture was a folk art, created from the materials of its own site. Since it is a rural development we are hopeful that it may be spared the destructive apparatus of "progress" for at least another hundred years.

I am indebted to Carl K. Hersey, Chairman, Department of Fine Arts, University of Rochester, and to Bertha L. Gupill for much help; to Agnes A. Gilchrist and Abbott L. Cummings for their encouragement, and to Herbert S. Rand of Syracuse and many other kind persons for helpful information.

1. Talbot Hamlin, *Greek Revival Architecture in America* (New York: Oxford University Press, 1944).

2. 1854 is the year of the latest dated domestic dwelling. There are single minor cobblestone structures of a later date, such as a cemetery vault in Elbridge, 1879. The First Baptist Church in Webster was dedicated in 1857, but the beginning of its building period probably dates from before 1854. Dates earlier than 1828 are insufficiently documented.

3. For the geology of the Genesee region see Thomas G. Paine, *The Genesee Country* (Rochester: Rochester Museum of Arts and Sciences, 1938).

4. Cobblestones are fragments of rock from about 2½ to 10 in. in diameter which have broken off from the parent rock and have been transported from their original position. During this transportation by glacial ice or water, erosion has taken place and the stone has been more or less rounded. It is obvious that more erosion takes place during a long path of transportation than during a short travel. It is also obvious that soft stone, i.e., fragments of sedimentary rock, will erode more readily than fragments of hard rock of igneous origin.

5. This area is dotted with small hills of the shape of an inverted spoon, the steep side facing north in the direction of the path of the glacier. They are deposits of assorted glacial debris.

6. C. P. Dwyer, *The Economic Cottage Builder* (Buffalo: Wanzer McKim and Co., 1856), p. 35.

7. H. G. Richey, *The Building Mechanics' Ready Reference*. Stone and Brickmasons' Edition (New York: John Wiley and Sons, 1907).

8. It is likely that this name stems from English flint work which is discussed subsequently.

9. United States Department of Agriculture, Information Series No. 54. Bureau of Plant Industry, Soils, etc. Division of Farm Buildings and Rural Housing, 1946.

10. Carl Schmidt states that the names of over twenty masons have been recovered. (*Museum Service*, Bulletin of the Rochester Museum of Arts and Sciences, Vol. 28, No. 5). Unfortunately nothing is known of their training as masons. Were they really professional masons and where could they have received their training? It is questionable that in the pioneer society one single profession should have that many exponents. Furthermore only a few of the latest dwellings show professional craftsmanship. Certain groups of houses reveal the hand of one single mason.

11. The cobblestone cottages of Yorkshire offer another possibility. See Russell Sturgis, *A Dictionary of Architecture and Building*, 1905.

A photograph dating from about 1885 in the collection of George Eastman House, Museum of Photography, by P. H. Emerson, *A Quiet Pool*, shows a cobblestone cottage in the Norfolk Broads.

12. George R. Barham, *Masonry*. Longmans' Technical Handicraft Series (New York: Longmans, Green and Company, 1914).

For a detailed account of flint architecture see John Charles Cox, *The English Parish Church* (London: B. T. Batsford, 1914), Ch. IV.

13. Compare this technique to the Porta Palatina, Turin, inner face of wall (G. T. Rivoira, *Roman Architecture and its Principles of Construction under the Empire* [Oxford: Clarendon Press, 1925], Fig. 55). The words "river cobbles" should be substituted for "river pebbles." It is a common error to use the word pebble instead of cobble. Pebbles are less than 2½ in. in diameter and hardly practical as wall facing material.

14. Many parallels suggest themselves, especially in the aspect of wall embellishment (as discussed later).

I am indebted to William H. Olpp, Assistant Professor of Fine Arts, Ohio University, for the following information and photographs: The use of field cobblestones appears in Burgundy in the late Xth and early XIth centuries, where entire edifices were laid up in *opus spicatum*. Stream cobbles laid in thick mortar were used as early as the Xth century in Roussillon (Pyrénées-Orientales). A photograph of the Gothic Cathedral of Saint Jean at Perpignan shows the entire façade laid up of cobblestones in herringbone pattern, while the façade of the city hall has alternating bands of oblong and round cobblestones separated by thick tooled joints.

15. Gerda Peterich and N. G. Klehamer, *Cobblestone Architecture in the Rochester Area*. Typescript, Rush Rhees Library, University of Rochester, 1953.

16. The occasional use of brick for quoins and lintels should be mentioned.

17. A classification by periods, early, middle and late has been suggested by Carl Schmidt (*Cobblestone Architecture*. Rochester: Published by the author, 1944). However, a comparison of dates and considerations of geological and economic factors renders such a classification doubtful.

18. I am indebted to Marion Card, formerly art librarian, University of Rochester, for pointing out the similarity of the front elevations of these two houses.

19. Reprinted, with slight variations, in Carl Schmidt, *op. cit.* The name is now spelled Bonesteele. The house was occupied by the Bonesteele family until recently.

ST. PETER'S, PITTSBURGH,

BY JOHN NOTMAN

JAMES D. VAN TRUMP

DESIGNED BY the Philadelphia architect, John Notman, St. Peter's Episcopal Church, Pittsburgh, (Figs. 1 and 2) is an excellent example of the mid-19th-century archaeological phase of the Gothic Revival.

Once in the actual shadow of the Allegheny County Courthouse (in both its Greek and Romanesque versions) at Grant and Diamond Streets,¹ the church was dismantled and moved in 1901 to a new site at Forbes Street and Craft Avenue in the Oakland district of Pittsburgh. At the time of the removal, the vestibule was added to the façade and some vestry rooms to the rear, but these changes did little to alter the original character of the structure. A sandstone building of considerable size in the "Decorated" style with a clerestoried nave of six bays, side aisles, a chancel and a tower with a stone broach spire, it had all the elements that most English Ecclesiologists of the period would have found necessary for architectural salvation—except either a High Church congregation (there was no such thing in Pittsburgh in 1851) or any reference to Anglo-Catholic doctrine.²

Many of the English church architects of the 19th century were Tractarians—notably William Butterfield and G. E. Street—as was Richard Upjohn among the Americans,³ but Notman seems to have had no predilections in that direction.⁴ He was, however, well equipped to purvey the fashionable idiom of the moment and the "Decorated" style, backed by the architectural wing of the Anglo-Catholic movement, had become by the late '40's the most fashionable style for churches.⁵ Notman's church of St. Mark in Philadelphia designed in 1848 is one of the best-known American examples of this type and is the prototype of St. Peter's. The Pittsburgh church is not, however, a mere copy of Notman's earlier design; although the similarity is obvious, the later building shows many differences in planning and detail.

There was little in the city of Pittsburgh to prepare for

the advent of such a church as St. Peter's. In contrast to a most sophisticated even if sober and conservative Greek Revival which developed in this area, the Gothic mode could be seen only in its most superficial and "applied" aspects. The second⁶ Trinity Episcopal Church (built 1824—demolished 1869–70) which was designed by John Henry Hopkins⁷ (rector from 1823 to 1834) had advanced little beyond the 18th-century "Gothick." Its exterior of stuccoed brick decorated with "features" from Britton and its meeting-house interior Gothicized by imitation fan vaulting painted on the flat ceiling constitute a romantic vision which, as seen in old illustrations, has a certain tenuous charm.⁸

The only local Gothic monument of the first half of the century which can compare with Notman's church is the Puginesque St. Peter's, Brownsville (1844), a few years earlier in date.⁹

By mid-century, the Trinity Church that Hopkins had erected, was too small for the growing congregation, and to take care of the overflow, it was decided to erect another church nearby (what would be called in England "a chapel of ease"). In September 1850 the Vestry of Trinity met to consider building a structure "to be denominated St. Peter's church."¹⁰

As soon as they had procured a site for a church, they decided on January 20, 1851, that three of their number were to confer with Mr. Nottman (*sic*) concerning the new building.¹¹ On March 14 the Rector of Trinity submitted for the consideration of the Vestry plans numbered one, two and three, prepared by the architect. It would appear that Notman might have kept a number of plans on hand to be presented to prospective church builders, an hypothesis which seems more probable in view of what followed. The Vestry finally decided to accept design Number two excepting that there be one bay less in the nave and also that the chancel be restricted to eighteen feet in length.

On April 15 the cornerstone was laid and on June 26 a committee reported to the Vestry that Notman had been employed to superintend the construction of the church. In contrast to St. Mark's in Philadelphia, the church was constructed as planned, all at one time. The building was

JAMES D. VAN TRUMP lives in Pittsburgh and is a free-lance writer. Publication of this paper reflects the interest in the local scene aroused at the 1956 annual meeting of the Society held in Pittsburgh.

finished late in 1852 and the first service was held in it on December 19 of that year.

The original plans of the church have disappeared but in 1900 the Pittsburgh firm of Vrydaugh and Wolfe, in charge of the removal from Grant Street, made a complete set of plans of the church as it then existed, unaltered and as built by Notman. These plans too have vanished,¹² but not before they were copied for the Historic American Buildings Survey in 1935.¹³

Notman's career has been extensively recorded by Robert C. Smith of the University of Pennsylvania.¹⁴ There is also a brief sketch of his life in Joseph Jackson's *Early Philadelphia Architects and Engineers*, which is not, however, always accurate. John Notman (1810–1865), was born in Edinburgh, Scotland, and came to this country about 1831. At first he worked as a carpenter in Philadelphia before he undertook to design any buildings. Apparently he had received some architectural training in Scotland and he may also have attended the classes on architecture given at the Franklin Institute of Philadelphia, possibly receiving instruction from William Strickland. In 1836 he received his first commission (in competition with both Strickland and T. U. Walter)—Laurel Hill Cemetery, an essay in Romantic English landscape gardening. The mortuary chapel of this project (now destroyed) was his

first work in the Gothic mode—done in that Perpendicular phase of the style which had so dominated the earlier course of the Revival. Notman's next projects were residences in New Jersey, mostly in the Italian villa style. Throughout his career he showed a preference for Italian architecture of various types, particularly in his elegant Barry-esque plan for the Athenaeum of Philadelphia (1845), the re-building of Nassau Hall at Princeton (1855), the Church of the Ascension at Philadelphia (1846) which was modeled after Sant' Ambrogio in Milan, and his façade for SS. Peter and Paul, Philadelphia (1846–64), which had as its inspiration the Baroque church of S. Carlo al Corso in Rome. For his churches he usually used either the Romanesque or the Gothic—in the former style there are the Philadelphia churches of the Holy Trinity (1856) and St. Clement's (1855), and in the latter Calvary Presbyterian of Philadelphia (1851), St. John's, Wilmington (1858), and St. Mark's. Among the Gothic churches, St. Mark's is the only one that bears any close resemblance to St. Peter's; Calvary Presbyterian is in the Perpendicular style¹⁵ and St. John's, Wilmington, Early English.

St. Mark's was in many ways a direct outgrowth of the Anglo-Catholic movement in the English church.¹⁶ The Philadelphia parish was founded in 1847 by a group of laymen who wished to revive what they considered to be a more Catholic worship; this group was also familiar with the work of the Ecclesiological Society. Even after Notman had presented a set of plans to the Vestry, it was decided early in 1848 to apply to the Society itself for another set of plans.¹⁷ These drawings, executed by R. C. Carpenter who was then the favorite architect of the Society, were duly despatched to Philadelphia, but they were not used owing to "certain peculiarities" as the Vestry minutes state.¹⁸

Notman's final plan, adopted in February 1848 and including some "improvements" from the English one, was largely his own and consequently the church as erected differed only in minor details from his first plan of 1847. The influence of Carpenter on St. Peter's was slight and the general form of both churches was Notman's.

St. Peter's in its present setting has been almost overwhelmed by the modern mechanized metropolis. Its sandstone walls laid in random ashlar have assumed that protective coloration so common to old buildings in Pittsburgh—a uniform sooty black. The terrain on which it stands is uneven and it is difficult to get a good view of the structure. Even so, the characteristic silhouette of the period is unmistakable: the emphasis is on verticality, without that distressing narrowness and thinness of form which is sometimes apparent in "shop" productions of the Victorian Gothic. The exterior of the nave walls except for a molded plinth and simple moldings at the roofline is almost unornamented. Pier buttresses with offsets mark the bays of

FIG. 1. St. Peter's Episcopal Church, Pittsburgh (1851). Exterior.



the aisle walls, but otherwise there is nothing but the restrained "Decorated" tracery of the windows to punctuate the simplicity of the plane surfaces. The triangular windows of the clerestory, rather like the truncated tops of full Gothic windows, give a sense of pleasing variety to the clerestory and they constitute a marked divergence from the exterior treatment of St. Mark's where the clerestory windows are fully developed although small. The chancel which was enlarged in 1901 has the original large window over the altar, with its five lights and "Decorated" tracery, notable for the delicacy and precision of its execution, quite free from provincial fumbling. The present vestibule with its three arched entrances, although in the same style, seems too obviously an addition and rather spoils the stark simplicity of Notman's design. In passing, one cannot refer to the west front, inasmuch as the building, unlike St. Mark's, was never oriented liturgically, either in its former or its present site.

The four-storied tower with its elegant broach spire lies within the plane of the main façade, a favorite device employed by the architects of mid-century churches.¹⁹ In this way the tower occupies the first bay of what in a properly oriented church would be considered the south aisle, with one wall of the second story abutting against the clerestory wall. This placing is quite different from that of St. Mark's tower which is removed completely from the body of the

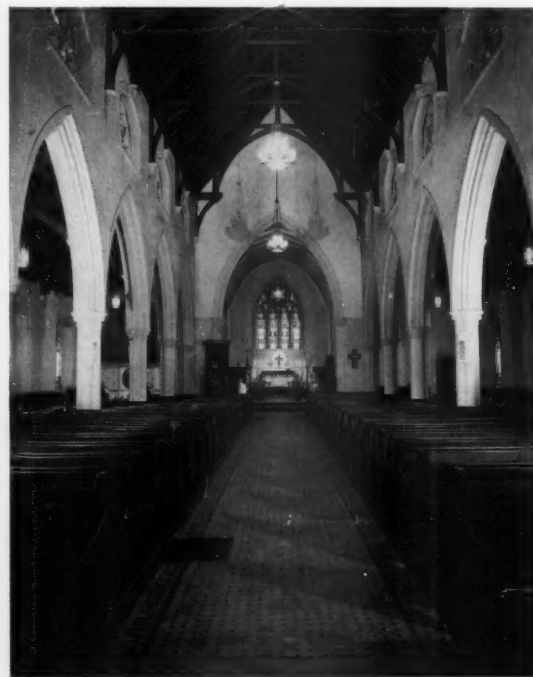
church with only the lower story meeting the wall of the second bay of the south aisle. In the Philadelphia church, the first story still serves as the main entrance to the building, as was originally the case with St. Peter's, when the building stood on Grant Street.

Notman liked to vary his compositions, and his only other Gothic church tower, that of St. John's, Wilmington, (roughly similar in form to those of both the Philadelphia and Pittsburgh churches, although it has a spire of timber and slate), is located at the side of the building near the chancel. Notman never seems to have used the centrally placed tower over the crossing, as Upjohn did at St. Mary's, Burlington, New Jersey (1845-46). However, it will be seen that Notman in placing his towers near the entrance façade of the church was following good Ecclesiological precept.

The proportions of St. Mark's tower are generally bulkier than those of St. Peter's and the general treatment is more sophisticated, but the slender outline of St. Peter's is more in keeping with the soaring elegance of the spire. Despite the angle buttresses with their offsets, which give a tapering appearance to the lower stages, the tower adds a marked accent of verticality to the whole composition. The simple entrance doorway, once the main entrance, with its cusped moldings and foliated capitals is quite fine; there was once a similar door in the center of the main façade but this has disappeared. Two corbels which terminate the drip molds on either side of the arch constitute rather an amusing note—they represent two well-nourished mid-century gentlemen with side-whiskers. As at St. Mark's the belfry stage has a double pair of louvred windows on each face. A word remains to be said on the medieval prototypes of these two towers. Harold Dickson has suggested that St. Mark's tower was modelled after that of St. Peter's, Raunds, Northamptonshire, but if so only the handling of the broach spire is similar. The tower of the Pittsburgh church²⁰ shows a certain resemblance to that of another Northamptonshire church, St. Peter's, Aldwinkle.²¹ It would be safer to say that both the American towers bear a generic resemblance to a group of towers with broach spires located in Northamptonshire and the neighboring Huntingdonshire. Since it is improbable that Notman ever visited that locality, he must have used some published source.

The interior of the church²² has not been greatly changed since it was first erected. The general sparseness of decoration, the cool off-white color of the plastered walls give the interior a bare, almost puritanical tone, which makes it easier to assess its fine structural qualities. The simplicity of the moldings and pier shafts of the nave arcade emphasizes the large openings of the arches, and there is no sense of sharp division between nave and aisles. The smaller spatial volumes of the aisles merge easily into the greater height of the nave with its fine overarching

FIG. 2. St. Peter's Episcopal Church, Pittsburgh (1851). Interior.



hammer-beam roof. Here again the general slenderness of the members and the lack of carved detail save the roof from the feeling of confused fussiness which characterizes several of Upjohn's beamed roofs of the 'forties, notably in Grace Church, Brooklyn (1847-48). This straightforward solution of a structural problem is a far cry from Bishop Hopkins' painted ceiling, but it had little influence on later building in Pittsburgh.

Nothing so fine as St. Peter's roof was done in Pittsburgh until Richardson's Emmanuel Church (1883-84) whose dramatic beamed roof is the chief feature of the interior.

The ordered quiet of Notman's interior composition is rather interrupted by his attempt to integrate the base of the tower into the nave. The last bay nearest the entrance façade has to serve as a bearing arch for the weight of the tower and consequently had to be reinforced and filled in except for a small arched doorway. Although not entirely successful, the work has a rather naive charm comparable to some of the structural expedients resorted to by medieval builders. The same problem was solved by Butterfield at All Saints', Margaret Street, London (1849-59), with more vigor and originality but Butterfield represents a later development in the Gothic Revival. At St. Peter's, the room thus formed by the partial enclosure of the bay once served as a vestibule and is now used as a baptistery.

The chancel with its coffered ceiling has the same general form as Notman's original chancel, although it was lengthened in 1901. Although the raised chancel floor was a *sine qua non* of the Tractarian church, the Historic American Buildings Survey plan of 1935 shows the chancel as level with the floor of the nave. This does not agree with a photograph of the interior, made in 1900 and published in a Pittsburgh periodical,²³ which shows two steps leading into the chancel—the present arrangement—and which indicates that the steps were part of the chancel on the Grant Street site. Since both the Notman and the Vrydaugh and Wolfe plans have disappeared it has been impossible to

discover the source of the arrangement shown in the 1935 plans. The chancel was enlarged, as was the case in many late 19th-century Episcopal churches, to make room for an organ and choir stalls; on Grant Street the organ and stalls had been located in the nave to one side of the chancel, which was hardly good Tractarian practice. The chancel arch is of the same type as those of the nave arcade but were a little more elaborate, and the lateral shafts have foliated capitals in contrast to those of the nave which are plain.

The plastered walls of the church constitute another marked difference from St. Mark's where the brownstone walls were left exposed. St. Mark's was thereby more nearly in consonance with a considerable body of 19th-century opinion which held that interior masonry walls were more "medieval."²⁴ Actually, St. Peter's conformed with medieval practice, although the plastering may very well have been dictated by Pittsburgh standards of architectural propriety. The plaster was, of course, painted in dark tones that would not show the effects of Pittsburgh grime, and after 1901 the exposed stone work of the nave and chancel was painted also.

The original stained glass is no longer extant.

When the church was opened for services in 1852 the *Pittsburgh Journal* observed: "We believe that Pittsburgh can now boast of the most beautiful church building of the western country. And even at the East, while we have seen buildings far more costly and decorated with much more elaborate ornament, we have seen none which for majesty and imposing grandeur and simplicity can be entitled to rank before it."²⁵ Hitchcock has stated that St. Mark's is certainly not far below Carpenter's standard,²⁶ and St. Peter's can easily bear comparison with the Philadelphia church. It may therefore be said that the two churches are not far behind contemporary English work in quality and they are probably the two best examples of their type in the United States.

1. An article in the *Pittsburgh Evening Chronicle* (Saturday, 18 December, 1852) indicates that there was some dissatisfaction with the site—"We must confess to feeling a little provoked that so tasteful a specimen of the purest Gothic architecture should have been built on such a bad site. We cannot imagine what influenced the building committee to choose so hidden a corner in which to erect so beautiful a church." Today it is difficult to see how the locality could have been described as hidden, and the church must have acted as an admirable foil to the Greek Court-house.

2. Sir Kenneth Clark, *The Gothic Revival* (London, new ed. 1950), pp. 204 ff.

3. Everard M. Upjohn, *Richard Upjohn* (New York, 1939), p. 72.

4. No special religious affiliations are mentioned in the sketch of Notman's life included in Joseph Jackson, *Early Philadelphia*

Architects and Engineers (Philadelphia, 1923), pp. 213-225. Further research may yield more information, however.

5. Henry-Russell Hitchcock, *Early Victorian Architecture in Britain* (2 vols; New Haven, 1954), I, 152. Hitchcock's admirable study of the course of the Gothic Revival in England during the 'thirties and 'forties has been of great help in the preparation of this paper.

6. For the third Trinity Episcopal Church (1870) see Hawkins Ferry, "The Gothic and Tuscan Revivals in Detroit, 1828-1875," *Art Quarterly*, IX, No. 3 (Summer, 1946), 248.

7. The Reverend Mr. Hopkins while he was still living in Pittsburgh (he became Bishop of Vermont in 1834) had complained of the lack of architects equipped to handle the Gothic style. His biography was undertaken by his son, J. H. Hopkins, Jr., *The Life of the Late Right Reverend John Henry Hopkins* (New York, 1873). Everard M. Upjohn has also paid tribute to him as an important

figure in the early history of the Gothic Revival in America (*op. cit.*, pp. 12-13). Hopkins published his *Essay on Gothic Architecture* in response to numerous requests made to him for church designs. He was not a professional architect, however, and might more properly be considered an amateur in the 18th-century sense.

8. See J. H. Hopkins, *Essay on Gothic Architecture* (Burlington, Vermont, 1836), p. 39, Pl. V, and a small anonymous and undated watercolor now in the possession of Trinity Cathedral, Pittsburgh.

9. St. Peter's quite deserves the praise that Talbot Hamlin has given it in his *Greek Revival Architecture in America* (New York, 1944), pp. 276-277. See also Charles M. Stotz, *Early Architecture in Western Pennsylvania* (New York, 1936), pp. 216, 226-230. The church resembles in general form, Pugin's St. Oswald's, Old Swan, Liverpool (1840-42), which as Hitchcock has suggested (*op. cit.*, I, 73) became a favorite model for churches on both sides of the Atlantic. As the Brownsville church was built so soon after its English prototype, it is probably one of the earliest examples of the type in America and it is interesting also that the Roman Catholics of the Brownsville area should have chosen Pugin's work for emulation. Admittedly primitive, this rugged building, almost devoid of Gothic historicisms and depending for its effect on powerful massing, seems to have risen from the commanding hillside on which it stands. The structure is something of an historical puzzle as both its architect and builders are unknown and it seems to have had no local influence.

Much less successful was the first St. Paul's Roman Catholic Cathedral, built 1829-34, destroyed 1851 (Stotz, *op. cit.*, p. 216), a large brick structure noted chiefly for its size—indeed it was one of the largest churches of its time in the United States. Its attenuated masses and spiky tower had a meager insubstantial air, although it did not lack a certain awkward, even if "phoney," grandeur.

John Chislett's gatehouse for Allegheny Cemetery (1844) although a pleasant exercise in Gothic hardly qualifies as a major work.

10. *Historical Sketch of St. Peter's Church, 1850-1918*, p. 1.

11. Most of the information in this paragraph, except where otherwise stated, is to be found in the Vestry Minute Books of Trinity Cathedral under the dates noted. As St. Peter's did not lose its mission status and become a separate parish until 1854, the earliest records of the church are, of course, part of the Trinity Archives.

12. Information given by a former Pittsburgh architect, Louis Stevens, in a letter to the writer. Mr. Stevens states that the plans were given to him by Lawrence Wolfe, son of one of the partners in the firm of Vrydaugh and Wolfe. Mr. Stevens in turn gave them to the Diocese of Pittsburgh.

13. *Historic American Buildings Survey Catalog* (Washington, 1941), p. 327.

14. The author wishes to acknowledge the courteous assistance of Mr. Smith in the preparation of this study. Two studies by Mr. Smith contain most of the known facts on Notman: *John Notman and the Athenaeum Building* (Philadelphia, 1951), and "John Notman's Nassau Hall," *Princeton University Library Chronicle*, XIV, No. 3 (Spring 1953), 109-134. As most of the data in this paragraph have been taken from these two sources, it is hardly necessary to quote chapter and verse.

15. There is a photograph of the façade of Calvary Presbyterian Church in W. P. White and W. H. Scott, *The Presbyterian Church in Philadelphia* (Philadelphia, 1895), p. 102.

16. Alfred Mortimer, *St. Mark's Church, Philadelphia, and its Lady Chapel* (New York, 1909), pp. 3-7.

17. Minute Books of Vestry, St. Mark's Church, Book No. 1, 1847-1863, 8 February 1848.

18. The Carpenter plans are in the possession of Ernest H. Yardley who has been of great help in the preparation of this study.

19. Hitchcock, *op. cit.*, I, 125.

20. Harold E. Dickson, *A Hundred Pennsylvania Buildings* (State College, Pa., 1954), p. 56.

21. An earlier Victorian engraving of this church is reproduced in *American Architect and Building News*, XXIII, No. 665 (22 September, 1888).

22. Hitchcock, *op. cit.*, II, Pl. V, shows the interior of St. Thomas' Church, Coventry, England, by Sharpe and Paley (1848-49) which is strikingly similar to that of St. Peter's, except that the general proportions are much bolder.

23. *The Bulletin*, XLII, No. 15 (2 February, 1901), 1.

24. G. H. Cook, *The Medieval English Parish Church* (London, 1954), p. 195.

25. Quotation published in the *Pittsburgh Evening Chronicle*, Saturday, 18 December, 1852.

26. Hitchcock, *op. cit.*, I, 152.

NOTES FROM ABROAD

EARLY CAST IRON IN ENGLAND

The current interest in cast iron construction in the nineteenth century makes this paper on the use of that material in industrial England particularly timely.

STANLEY MILL, STONEHOUSE, GLOUCESTERSHIRE

By H. F. SEWARD

Great Heath House, Coventry, England

Stanley Mill in the Stroud Valley is a typical example of the early use of cast iron in the façade and structure of the new building forms which had arisen throughout the industrial areas with the introduction of the factory system. This new structural technique, which gave unity to nineteenth-century architecture, and was to dominate British and American building for a century, had evolved gradually from the eighteenth century, to overcome the fire hazards of the previous mills.

This evolution of structural technique started with the early eighteenth-century spinning mills. These rectangular masonry boxes, with timber beams and posts, set the pattern of mills to follow. The pattern set, many mills were constructed up to the end of the eighteenth century but had later been converted to cotton mills. These textile mills, filled with combustible fibres, oil-soaked timber floors, and naked flame of candle and oil lamps, were an obvious fire hazard and they burned with alarming regularity. Consequently insurance companies refused to issue policies or else quoted extortionate premiums. Conditions such as these made it imperative that some sort of incombustible construction be employed. The use of masonry vaults to

render buildings fireproof was centuries old, but cost was excessive and the weight of buttressing had limited their application almost entirely to single-storey structures.

Recent research by Turpin Bannister has shown that the first incombustible, completely iron-framed building was built by William Strutt of Derby in 1792-93. The Calico mill, as it was called, no longer exists. It was 115 feet by 30 feet and 6 storeys high. Brick arches (actually segmental vaults running across the 30-foot width) were supported by cast iron beams running in the same direction which in turn transmitted their loads to cast iron columns.

It will be noted that the mill at King's Stanley built in 1813 follows this principle of construction very closely. This mill was the first of its type to be built in the West of England, and was built as a woollen factory in a district long famed for its high quality woollen cloths. Buildings of a similar size had been built before the end of the eighteenth century in this region, but several of these had been destroyed by the disastrous fires caused by spontaneous combustion of the raw wool. It was this high fire risk which prompted the use of brick and stone floors supported on cast iron columns and beams as used in Stanley Mill. The use of cast iron in the windows, resulting in their very fine sections which in themselves add so much to the simple dignity of the building, was probably incidental, although it might be held that by its use in the windows as well, the last vestige of wood was eliminated. It is known that a mill had existed on the site of Stanley Mill for many decades, but very little is known of its history up to the time of the erection of the present main building in 1813, for a Harris Stevens. There are no records, as far as is known, of any transactions since. Research has proved unfruitful in revealing the authorship of the design, but the castings were

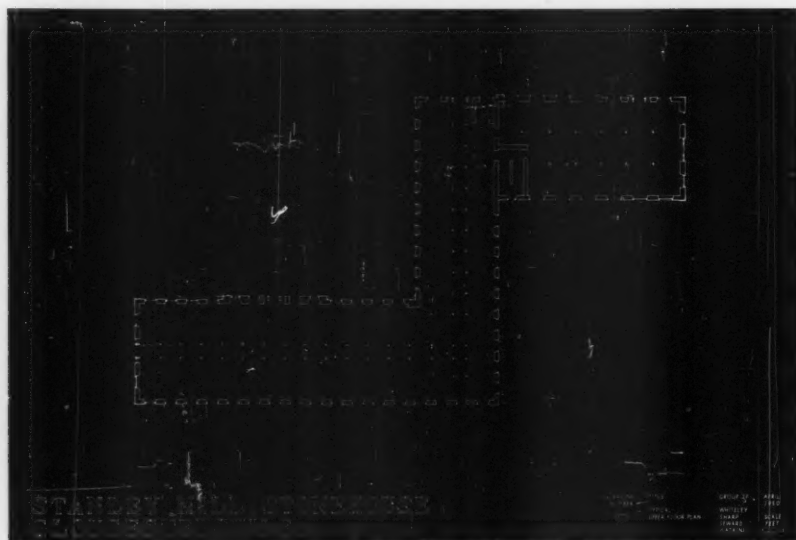


FIG. 1. Stanley Mill, Stonehouse, Gloucestershire. Typical upper floor plan. (From measured drawings by Messrs. Whiteley, Sharp, Seward and Watkins, April 1950)

manufactured by Benjamin Gibbons of the Level Iron Works near Dudley in Worcestershire, and hereto, no records of this firm have been traced.

The main building has three wings, five storeys high, of which two are 36 feet wide running east-west, joined by a block running north-south of 28 feet wide. It is the southern and link wings that have the cast iron structure and windows, but the north wing, though it looks identical to the others from the outside, has a timber internal structure and wooden windows.

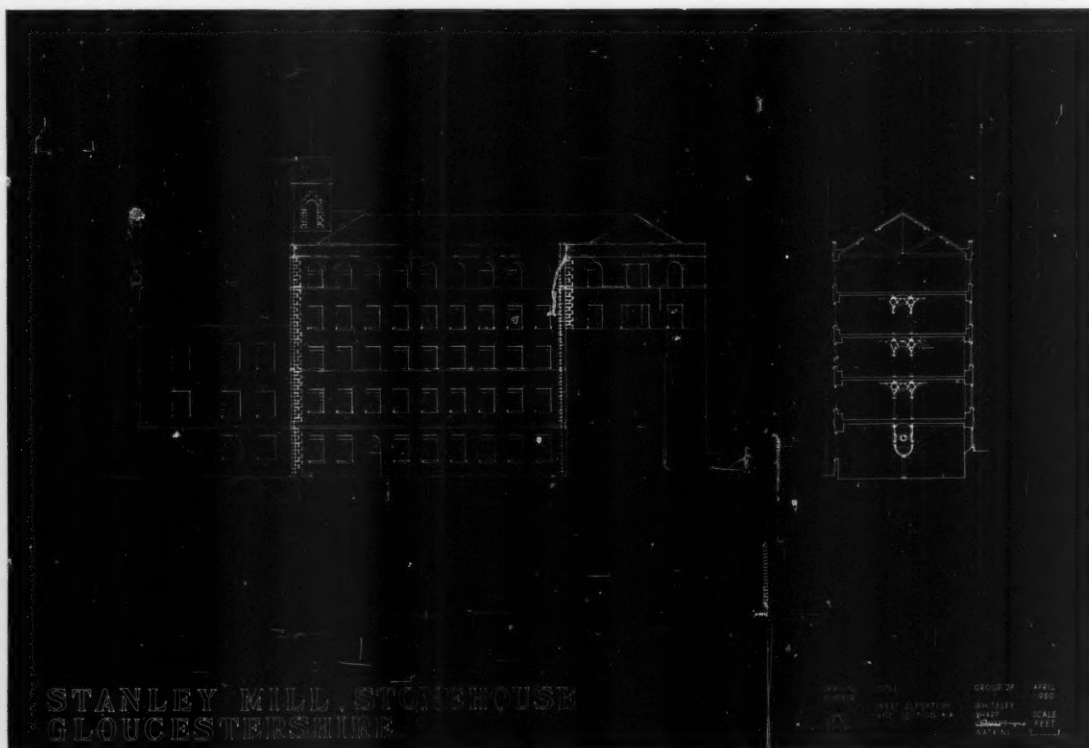
The external load bearing walls are of local red brick varying in thickness from 2 feet 6 inches at the bottom to one foot 6 inches at the top. On the upper three floors twin columns 6 feet 4 inches high and 5 feet apart are spaced at 8 feet one inch intervals along the two wings. Each pair is surmounted by a large casting 13 feet long and 5 feet one inch deep, giving 4-foot cantilevers beyond the columns at each side, and so reducing the spans to the walls to 8 feet and 11 feet. This is spanned by one-foot-5-inches-deep cast iron beams, and the space between each is spanned by a brick arch having a rise of 9 inches at the centre. Across the building there are five castings provided, which it is assumed were for shaft bearings. There are three in the

main casting and one in each beam. The nature of the machines and their layout can only be conjectured.

On the ground floor, the size of columns and their spacings are different as provision was made for heavier machines and the installation of two water wheels. The columns are again in pairs, except for six special single ones which are capped by a 5-foot diameter semi-circular capital casting, and are 10 feet 6 inches high. The beams surmounting them span along the building, and as these spans vary from 10 feet to 16 feet, there are at least five different castings which include bosses to take the bases of the upper floor columns at 8 feet one inch centres. The ceiling arches span 8 feet one inch on the upper floors.

The building is in an excellent state of preservation, there being less than 2 inches difference in level between one end of the long south wing and the other. There have been only a few minor alterations in the mill itself and the present owner, realising the importance of the mill as an example of this early type, is making every effort to remove all the excrescences that have grown around it over the past years, and to prevent any further deterioration. There is every hope, therefore, that it will be preserved in its original form as a monument to this era of fine building.

FIG. 2. Stanley Mill, Stonehouse, Gloucestershire. West elevation and section A-A (see FIG. 1). (From measured drawings by Messrs. Whiteley, Sharp, Seward and Watkins, April 1950)



AMERICAN NOTES

CHARLES E. PETERSON, *Editor*

421 Walnut Street, Philadelphia 6.

A LATROBE POSTSCRIPT

Our old friend Talbot Hamlin has developed a perfect antidote for the study of architectural history—salt-water cruising. Retired from his long and productive career at Columbia, Mr. Hamlin and his wife follow the seasons along the Inland Waterway. From Dinner Key (which we remember as a base for flying boats going to sea) he has favored us with some notes on a remarkable drawing which turned up recently near Philadelphia.

The owner, Mr. Roosevelt, while he is a direct descendant of Latrobe, did not get it through a long descent in the family. The truth is that an uncle bought it in a junk shop some years ago. Mr. Hamlin's splendid biography of Latrobe, appearing late last year, brought the drawing to our attention and we are happy to reproduce it here.

A PREVIOUSLY UNPUBLISHED PERSPECTIVE OF THE UNITED STATES CAPITOL BY B. H. LATROBE

By TALBOT HAMLIN

During the summer of 1805 there developed the only major disagreement between President Jefferson and Benjamin Henry Latrobe over the design of the United States Capitol—concerning the lighting of the House of Representatives. Paul F. Norton has already in the *Journal of the Society of Architectural Historians* covered this disagree-

ment in interesting detail.¹ During the summer of 1806, when completion of the House roof was delayed by non-delivery of the necessary glass, Latrobe took the occasion to construct the framing so that *either* the separate lights Jefferson wished or the cupola he himself preferred could be used, and he framed up the cupola in a temporary form. Jefferson was enraged at seeing this, and Latrobe wrote him an apologetic letter (October 29, 1806). Then, as if to put a final end to the controversy, Latrobe made a new rendered perspective of the Capitol and in November sent it to the President with a note reading in part: "In presenting to you this perspective of the Capitol, which I herewith leave at the President's House, I have no object but to gratify my desire, as an individual citizen, to give you a testimony of the truest respect and attachment."

It is this drawing which has only just come to notice. It is a careful perspective, rendered in colors rather darker in tone than those the architect usually used; it shows the east front and the north end and bears the inscription (as if on a fallen panel): "To Thomas Jefferson, Pres. U.S. B. H. Latrobe, 1806." The drawing is in the possession of William Morrow Roosevelt of Whitemarsh, Pennsylvania, who was good enough to bring it to my attention and to send me a duplicate of the photograph reproduced here.

The perspective is an interesting document revealing Latrobe's conception of the entire building at that date. It shows the cupolas over the Senate and House wings; that at the left is the one he wished to substitute for the skylights Jefferson preferred. It is possible that they exist here merely as decorative elements, but when the Capitol was

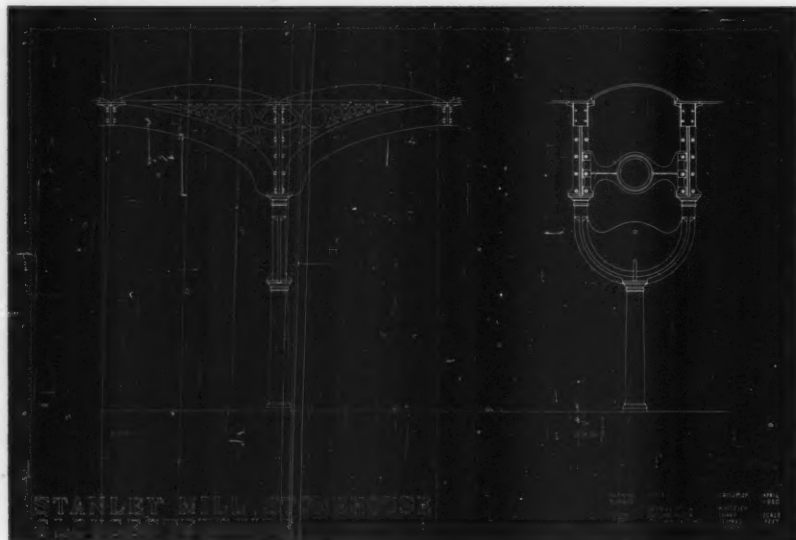


FIG. 3. Stanley Mill, Stonehouse, Gloucestershire. Details of ground floor column castings. (From measured drawings by Messrs. Whiteley, Sharp, Seward and Watkins, April 1950)

rebuilt after the British destruction in 1814 they were retained. The exterior of the two wings, of course, follows Thornton's original design, but the central portion (entirely Latrobe's) has the low, Pantheon-type stepped dome on an octagonal base which he planned and a long colonnade on the façade to give the whole a monumental grandeur. In this drawing, however, the entrance porch is only six columns wide. Evidently as Latrobe restudied the building in later years he felt that the six-column width was too small for the scale of the whole (as this perspective makes clear), and he increased its width to eight columns and

NATCHEZ (CONTINUED)

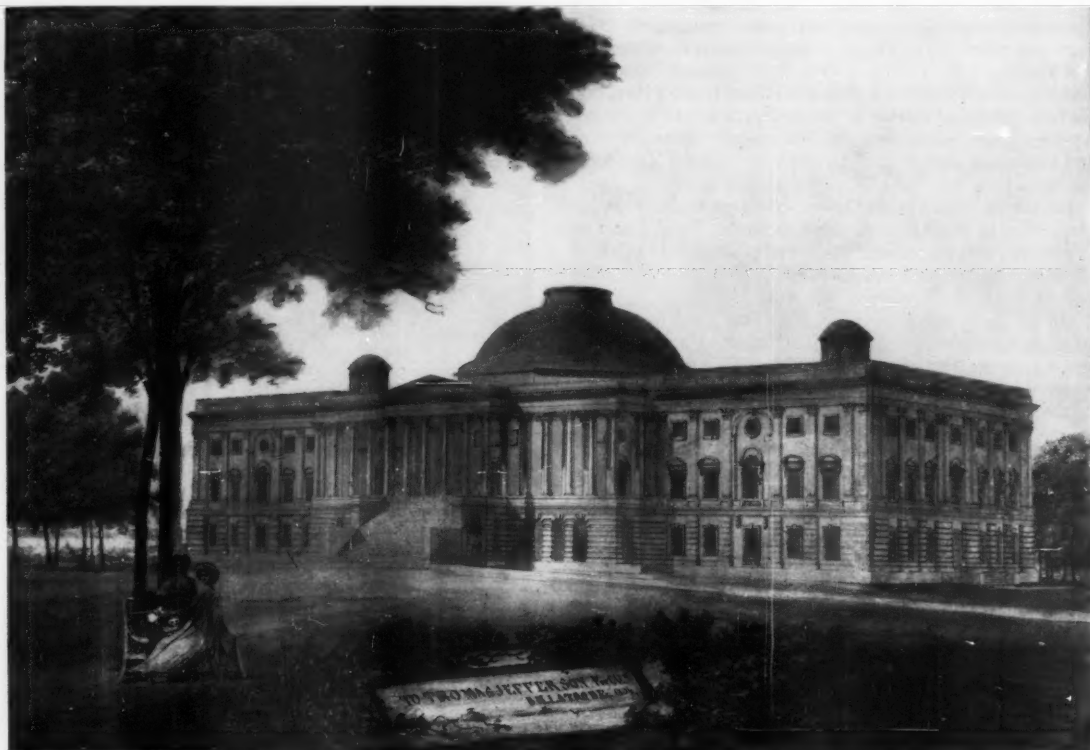
LEVI WEEKS ON NATCHEZ, 1812

Historian Edith Wyatt Moore lent us a transcript of a long letter written by an early Natchez builder to a friend back in Massachusetts. Here are some excerpts, omitting some of the scandalous parts for reasons of space:

Natchez, September 27th, 1812.

Dear Sir,

. . . First it may not be amiss to inform you of the



The United States Capitol, Washington, in 1806. Colored drawing by Benjamin Henry Latrobe. (Collection William Morrow Roosevelt, Whitemarsh, Pennsylvania)

raised the height of the pediment ridge to give a more commanding effect. The wider portico is shown in the drawings he made in 1817, which were closely followed by Bulfinch during the next few years.

We are fortunate indeed to have this evidence of one of the stages of design through which the national Capitol has passed.

1. Paul Norton, "Latrobe's Ceiling for the Hall of Representatives," *Journal of the Society of Architectural Historians*, Vol. X, No. 2, pp. 5-10. See also Talbot Hamlin, *Benjamin Henry Latrobe* (New York: Oxford University Press, 1955), pp. 230, 272-74.

sphere in which I walk, and the necessity of employing the most of my time in my vocation.

As to Society, it is but a few families that I visit. These are the first standing. My employment is the superintendence of a large brick-house and a brick Presbyterian Church as architect.

Those buildings, together with a cabinet and chair shop that I carry on solely, without even a foreman that can be depended on, you will readily believe must occupy the most of my time, especially when I have to board my shopmen, as is the custom of the country, . . . from 16 to 18 in family, and nobody to attend that part but a negro cook.

I have also been employed the season past to give plans

to an hospital and banking house, which with the stupidity I have to contend with, took much time, . . .

The brick house I am now building is just without the City Line, and is designed for the most magnificent building in the territory. . . . The body of this house is 60 by 40 feet, with a portico of 31 feet, projecting 12 feet, supported by 4 Ionic columns with the Corinthian entablature, the ceiling vaulted, the house two stories with a geometrical staircase to ascend to the second story. This is the first house in the Territory on which was ever attempted any of the orders of architecture.

The site is one of those peculiar situations which combines all the delight of romance, the pleasure of rurality, and the approach of sublimity.

I am more particularly describing this seat, not only to give you an idea of the progress of improvement, but to inform you what you will hear with pleasure, that owner of it is a Yankey, a native of our own State,—Massachusetts,—and is now in Boston on a visit. His name, Lyman Harding. He received his education at Cambridge, came to this country more penniless than myself. His celebrity as an attorney and counsellor at law has no competition in the Territory. He has a little son, his only child, now in Boston.

He has amassed a large fortune, owns an extensive sugar plantation in the Attakapas on the Bayou Tech, La. You will excuse this digression, for I love to speak and think of my own country [men] who will not let the fancy Virginian and supercilious Carolinian ride them down.

On the plain below the Bluff there is a great number of small houses which accommodate boatmen and the like, and where the filth of creation resides. This place is called under the Hill and in further speaking of Natchez, I shall further distinguish this place in that way.

[Next the writer lists the mechanics, professional men and business establishments of the town which included, relative to builders' works, 6 blacksmiths, 6 carpenters, 1 coach and sign painter, 3 house painters, 5 brickyards, 4 master brick-layers, 2 plasterers, 2 tinnerns, 2 window-chain makers and 1 nail factory.]

The town has been supplied altogether by water from the Mississippi until of late. There are three wells and a great number of cisterns, introduced by your humble servant, which is found almost to supercede the necessity of water carts.

The public buildings are The City Hall and Market House, the Catholic Church, small Methodist Meeting House, and Engine House and a new church (Presbyterian) I am now erecting, a corner stone of which was laid about the 1st instant, with the following inscription etched by myself on steel:

"This Church, designed for Presbyterian Worship of God, Founded by the donations of Individuals of Natchez and its Vicinity, A. D. 1812.

Samuel Brooks, John Henderson, John Steele, Joseph Forman, Lewis Evans, Lyman Harding, James McIntosh and Thomas L. Scroop, Commissioners Lewis Evans, Contractor; Levi Weeks Architect, Swan and Williams, Masons."

The plate was laid in the stone, and covered with cement that will keep it from corroding, and with a well conducted ceremony, assisted by the Parson, was laid down.

There are the remains of several old fortifications all now totally neglected. . . . The whole Western savages are

let loose on our frontiers, and God only knows where they will stop.

You see I have nearly gone through my paper and said but little for so interesting a subject. I will endeavor to give you some further hints in my next, which perhaps you may find on opening the next mail. Meanwhile permit me to subscribe myself, your friend and obedient servant,

Levi Weeks.

Ep. Hoyt, Esq.

The handsome brick house Weeks was then building still stands. It is called Auburn, belongs to the City of Natchez and is open to the public as an exhibition house. We offer



Auburn, Natchez. The "geometrical stairway."

here a photograph of the "geometrical stairway" referred to.

One Sunday we drove down to Woodville in the next county to see a builder's handbook owned by Weeks. Now in the hands of Maxwell Bramlette of Hampton Hall, the volume turned out to be the 8th edition (1773) of William Salmon's *Palladio Londinensis: or the London Art of Building*. It is an interesting work, especially because of the dictionary of builders' terms and the price lists of various items. Although the title page promised a copious treatment of stair-case design, there were none shown like that built in Auburn.

BOOKS

PAUL F. NORTON, *Editor*

The Pennsylvania State University

Nikolaus Pevsner, *The Buildings of England* (London: Penguin Books): Cornwall, Nottinghamshire, Middlesex (1951); North Devon, South Devon, London (1952); Hertfordshire, Derbyshire, Durham (1953); Cambridgeshire, Essex (1954); forthcoming: Cities of London and Westminster, Northumberland, Somerset. \$0.85 and \$1 each.

Technically speaking, *The Buildings of England* consists of a series of guidebooks covering the more significant extant architecture of England from medieval times to the twentieth century. As such it is clear, comprehensive, and to the point—a definitive work of its kind. "Guidebook," however, is hardly the word for this series; scholarship at once meticulous and broad is combined with the informality of a personally conducted tour to produce a work most comparable, I think, to the encyclopaedias of the Enlightenment, which had a similar aim of simultaneously summarizing, spreading, and fostering knowledge. In such a program the essential thing is to hold a reader's interest, to make him not only aware of facts, but interested in them, or, in this case, not only aware of what fine buildings stand, but anxious to see, preserve, and perpetuate them. *The Buildings of England* achieves this in three ways.

First, in literary style. Mr. Pevsner's writing has a pictorial quality which literally brings his subject to three-dimensional life. Sometimes he proceeds by a few deft strokes: "pleasingly horrid Gothic Revival" (Chapel of the Royal Naval Hospital, Plymouth)—"ham-fisted ugliness" (St. Mark's, Paddington)—"grim warrens" (Bethnal Green tenements); sometimes by a chiaroscuro of paradox: "formidably mid-Victorian character of hearty and confident gloom" ("public buildings" of Harrow)—"major only as a disaster" (St. Mary Major, Exeter); sometimes, again, by broad panoramas of description (Durham Cathedral; Haddon Hall). As a result, as much or more profit may be derived from *The Buildings of England* by readers who never have seen, and possibly never will see, what is described as by those who stand before the monuments, book in hand.

Second, by a judicious sense of humor. Speaking of Finchale Priory, for instance, the author records a "curious piece of rude folklore" concerning a seat "said to have the virtue of removing sterility and procuring issue for any woman who having performed certain ceremonies sat down thereon. . . . It may perhaps be needless to observe," adds Grose, "that since the removal of the monks it has entirely lost its efficacy." Strictly speaking, of course, such a tale has no aesthetic or practical relevance, especially since the seat itself has disappeared, and regular fare of this sort could reduce a serious work to quaint mush. Mr. Pevsner has discretion enough never to overwork this vein, using it rather to provide that indispensable salt which takes the flatness off history.

Third, personal comment and observation, resulting from the author's effort to see almost every monument cited. Therein is a danger, of course, that personality may intrude to the extent of turning objective record into some sort of didactic treatise on a pet style or theory. This pitfall, too, is avoided; in *The Buildings of England* we are always aware of Mr. Pevsner's taste, but always aware, too, that there are other opinions. He can write of the Albert Monument, so easy to damn, "This . . . is the epitome in many ways of High Victorian ideals and High Victorian style, rich, solid, a little pompous, a little vulgar, but full of faith and self confidence," or again, of Norman Shaw's mansion at Flete "a pile of Gargantuan size": "to us his Queen Anne or Dutch C17 mood may be more palatable, but fashions change"—and so on. In short, personal comments in *The Buildings of England* are always constructive, never patronizing. Things worth preserving are pointed out in passing: of All Saints, Annesley, he says, "It is not a

picturesque ruin, just an utterly neglected building. Why does not the Nottingham Museum secure the few remaining pieces worth saving?" Of the entrance to Lululand House, Bushey, he comments, "It must at all costs be preserved, as it is the only European work by the best American later C19 architect, H. H. Richardson." Likewise in passing, the author expresses opinions on the best lines for future development of Cambridge University, London's outer suburbs, etc.

There is, finally, something of an almost missionary spirit about *The Buildings of England*. Has Mr. Pevsner been meditating pessimistically on the future face of England, like so many others? He would hardly be unique in this; England has no lack of gloomy prophets on this subject. "In fifty years' time, the beauty of England will have been largely destroyed," says Joad. "What are they doing to England, with their bird baths and pink bungalows?" adds George Orwell. What is rare about Pevsner is rather that he has done something about it. *The Buildings of England* is not a preaching on cultural conservation, but a practising of it, and that is an achievement deserving all praise.

ALAN COWANS

Fleming Museum, University of Vermont

Wayne Andrews, *Architecture, Ambition and Americans* (New York: Harper & Brothers, 1955), 315 pp., illus. \$7.50.

What is taste? Mr. Andrews sees it as "the ambition which leads the architect to spend more time and energy than is reasonable, and the client, often but not always, to invest more money than common sense would dictate." Upon this rather uncommon definition, Mr. Andrews has built his book. His concern is not with works of pure utility, with folk architecture, "average" homes, mills, dams and bridges: it is with the "magnificent mansions" of the rich. Public or commercial buildings, even when graced by taste, receive comparatively scant attention (about four-fifths of the illustrations represent private residences), and the chapter on the "Chicago Story" almost assumes the character of a digression. The real theme of the book is the marriage between the millionaire and the architect; it seeks to prove that "the most vital American architecture of any given time will usually be found in those communities where the most new money was being made and enjoyed."

Because of its very limitations, this study in the economics of architectural beauty (or in the beauties of a tax-free economy) makes for better reading than a general history might. Its bias gives it pungency. The fine photographs, though impaired by their rather small size, contribute vivid impressions of works that are not normally reproduced in such books, or reproduced only in the familiar, dreary postcard style. Mr. Andrews' photographic skill flatters many of these buildings. He manages to endow the Grand Union Hotel of Saratoga Springs with a certain majesty that compels attention, particularly after the reader has been told that this monument's "piazza was littered with the ashes of Commodore Vanderbilt's cigars." The many quotations and anecdotes with which the text is sprinkled are almost as illuminating as the photographs themselves. We are delighted to see the salon-fountains playing cologne and champagne, to learn about Clarence Mackay's moose heads and to hear Saint-Gaudens exclaim at the Chicago World's Fair: "Look here, old fellow, do you realize that this is the greatest meeting of artists since the fifteenth century?"

After three brief chapters on the architecture of the Colonial and Federal periods, Mr. Andrews hits his stride with the advent of the Romantic era, the point at which tradition dies and self-conscious traditionalism appears on the scene, abetted by the Gothic novel and the untrammelled exhibitionism of a new mercantile class. Here "taste" bursts forth. "There is," Mr. Andrews quotes A. J. Downing, "something wonderfully captivating in the idea of a battlemented castle, even to an apparently modest man, who thus shows to the world his unsuspected vein of personal ambition." The great masquerade begins, we are on the way to "Biltmore" and Mr. Andrews is in his element.

It is difficult to understand how a recent reviewer could conclude that the Chicago of the eighteen-eighties and nineties comes out as the hero of this examination of taste in American architecture. Quite on the contrary, the real heroes of the book are Alexander Jackson Davis, Richard Morris Hunt, and the firm of McKim, Mead and White. The piquancy of this portion of the book lies in its reversal of widely accepted judgments. Mr. Andrews frankly expresses his admiration of eclectic styles which until recently seemed fit only for satire. He dares to discuss in terms of "taste" buildings which one is accustomed to find ridiculed as examples of architectural dishonesty. His chapters on the decades between the Civil War and the First World War imply a sweeping re-evaluation of the official architecture of that period. And in this he evidently reflects a broader effort, manifest in several other recent publications, at a rehabilitation of ornamented façades and borrowed styles.

A reaction against the austerity of contemporary architecture was bound to come sooner or later. Its first symptoms were to be found in the lushness that has crept steadily into certain aspects of "modern" design. Lately, this reaction has prompted that curious revival of interest in eclectic architecture of which Mr. Andrews' book is a sample. Like most romantic revivals, this one seems to have its roots outside the sphere of art. It was clearly born of a revulsion against the restraints which economic conditions have imposed upon contemporary architecture. Mr. Andrews, the rhapsodist of magnificent mansions, characterizes the effect of these conditions with terms such as anti-individualism, anonymity, brutality; he deplores the architect's enslavement to social planning, to concrete and glass, to the machine. Beyond this dismal foreground, to which he refers as the "modern muddle," he sees the vision of a former age of abundance, of reckless spending and full-blooded individualism. From the cramped vantage point of the present, the *nouveau riche* of the pre-income-tax era, ensconced in his spacious château, appears as an irresistibly glamorous figure: we have here the Great Gatsby illusion, the mirage of beauty which emanates from wealth. Who could remain indifferent to a Corinthian colonnade, however fake, knowing that behind it "Alva Vanderbilt plotted the marriage of her daughter Consuelo to the ninth Duke of Marlborough"?

In arguing his case for a rehabilitation of the Beaux-Arts style, Mr. Andrews wisely dwells on the chastest examples only and refrains from pointing to the far more common average productions of the eclectic school whose fraudulent composites still disfigure our cities. It is true that, having survived the nightmare, we may now find a certain fascination in these flamboyant enormities, just as it is possible to derive a slightly perverse stimulation from Alma Tadema's pagan idylls or Gerome's bloodstained gladiators. But the romantic appeal of bad art should not affect our judgment: it stems from external associations and has no relevance to aesthetic value. There cannot be much doubt that such nostalgic associations play a large part in the current resurrection of late nineteenth-century eclecticism, and it is a serious defect of Mr. Andrews' notion of "taste" that it substitutes such associational values for a fresh formal or historical analysis.

The least satisfactory part of the book is the final chapter which is devoted to main currents in twentieth-century architecture. Here Mr. Andrews' thesis betrays him into a thoroughly artificial grouping of contemporary architects into two opposed camps: in the one we find the spiritual heirs of William James the "Jacobites," whom he regards as the continuers of the tradition of "taste," in the other the "Veblenites" who, next to the framers of the income tax amendment, figure as the chief villains of this book. The Jacobites produce work that is "warm," individualistic, sensitive to material and site; the Veblenites are cool, anti-individualistic, obsessed with technology and functionalism. It is surprising to find grouped among the latter men of such diverse orientations as Le Corbusier, Gropius, Mies van der Rohe, and Neutra. In discussing their work, Mr. Andrews allows a note of sarcasm to mar the fairness and urbanity of his criticism.

LORENZ EITNER
University of Minnesota

Henry-Russell Hitchcock, *Early Victorian Architecture in Britain* (2 Vols.; New Haven: Yale University Press, 1954), 635 pp., 532 illus. \$20.00.

On the surface of the matter, one might, with reasonable justification inquire as to the suitability of a scholarly study of so complex a subject as Victorian Architecture in Britain before further present-day analysis had been made of the various stylisms which occurred during the long reign of Queen Victoria.

The English sovereign ruled for 64 years; Louis XIV for 72, making his the longest reign in history with Victoria's one of his nearest competitors in this respect. Duly acknowledging the variation which moved through the architecture promoted by the French Monarch during the active period of his reign, the total results still possess a relative unity that permits some readiness of analysis by the architectural historian. In comparison, the architecture of the long-reigned Victoria, emerges as infinitely more complex and diverse, further complicated by the results of industrial reorganization, shifting social patterns and patronage, religious variance, and a conscious break with an architectural tradition which had prevailed for more than two centuries. Add to these complications, the sharply augmented building needs of a dynamically expanding Middle Class in the face of a dearth of professionally trained architects. John Summerson points to roughly 100 architects at work in London in 1830, noting that by 1851 a London directory listed 1114 so-called architects. By implication it appears, at this period, that the clear channel of professional architectural thinking was stirred with strange eddies of half-knowledge or mere utilitarianism stemming from the legion of new and dubiously trained practitioners.

To analyze Victorian architecture or even "Early Victorian" under circumstances such as these, is a formidable undertaking. It needs a Henry-Russell Hitchcock to meet the challenge.

It is characteristic of Mr. Hitchcock that he, more faithfully than probably anyone else, has devoted some ten years to a close study of contemporary books, documents, ideas, and the buildings themselves to produce the two volumes which certainly will come to be regarded as a foundation work for the further study of the architecture of this perplexing phase of a markedly complicated period.

Sir Kenneth Clark, H. S. Goodhart-Rendel, Reginald Turner, John Summerson, Marcus Whiffen, Nikolaus Pevsner and Hugh Casson have published material of importance in the field, and Phoebe Stanton has completed the manuscript of her forthcoming book on Pugin. Nevertheless the total published output by present-day historians, quantitatively speaking, is so remarkably slight that Marcus Whiffen has been led to remark that the Hitchcock volumes "at least double the amount of recent published writing on Victorian architecture in Britain." English colleagues have generously been the first to praise his resulting studies. J. M. Richards of the *Architectural Review* remarked to me three years ago, that Hitchcock knew more about the Victorian architecture of London than anyone else to his knowledge. John Summerson of the Soane Museum stated, in connection with the need for continuing volumes covering the phase from about 1850-1870, "I am inclined to think, he [Hitchcock] is the only man alive with the equipment and perseverance to tackle it."

Hitchcock certainly has demonstrated both the requisite equipment and perseverance in an assignment which most historians would have found means to avoid. To this perseverance has been added, perspicacity, fine critical judgment and the ability plausibly to relate cause and effect. As to why Hitchcock directed his enquiry on the fifteen-year span of *Early Victorian Architecture in Britain* (1837-1852), the answer is simple. The job needed doing. The Victorian Period is a significant sector in the great stream of architectural development. Its threads had become sadly entangled before the broad pattern of the fabric itself, historically speaking, could emerge. This had to be corrected promptly, since so many of the chief buildings of the period were being lost to us through destruction, demolition, alteration or neglect resulting from a changing tide of taste, and the further social and economic changes that began to accumulate after World War I, reaching a point of marked intensity at the time of World War II. To accomplish this, Mr. Hitchcock chose a method of direct usefulness to the historian,

the architect and the student; namely, building types, the dominant architects (and many of the less known ones as well), charting the flow of ideas and the tracing of their subsequent influence.

In the process he has added to the scholarly achievements of our generation. Once again he has accepted a challenge requiring pioneer effort. I look back with admiration to his corpus of American Architectural Books published prior to 1895; to his studies of H. H. Richardson, Frank Lloyd Wright, his several works dealing with the Modern Movement in architecture in this country and lastly, his study of recent South American architecture. Once and for all he clarifies that it is not the early Renaissance-Palazzo Revivalism of Barry, the Lombardic efforts of the younger John Shaw, or the Gothic Revivalism of Pugin; nor is it evangelistic purpose or the utilitarian emphasis of the technicians, which determined the character of the Early Victorian architecture. Rather, it is the combination of all these which actually identifies and justifies the period as such.

Significant contributor to the scholarly understanding of both the Modern Movement of the twentieth century and that of the nineteenth century, Hitchcock time and again penetrates through the maze of minutiae to disclose the central core of successive problems and relates, or contrasts, them to the basic concepts that marked earlier, as well as succeeding, schools of architectural thought. His contrast between the esthetic objectives of the 1830's and the 1930's is concise and pungent. The distinction between the philosophy of the Barry and Pugin followers is clarified. The architectural implications of the Anglican and Non-Conformist requirements, the influence of the Oxford Movement, the Camden Society and John Shaw's report to the Bishop of London are all studied in varying degrees and incorporated in the total picture.

The delicate problems of the relative responsibilities of Barry and Pugin for the design control of Westminster New Palace is settled with plausibility, thanks to the generous action of Phoebe Stanton in sharing her findings with Mr. Hitchcock. Domestic architecture is provocatively explored, and this suitably includes a discussion of the Victorian continuation of urban housing estates, both speculative and philanthropic.

To a text of more than six hundred pages, a separate volume of over five hundred excellent illustrations has been added. The skill with which these have been chosen conveys almost a sense of personal discovery on the part of the reader as noted buildings, and hitherto unfamiliar ones, are illustrated by seldom seen original drawings, obscure lithographs, old engravings or excellent photographs.

It is a satisfaction to record that *Early Victorian Architecture in Britain* is the first book to receive the annual award of both the Society of Architectural Historians and the College Art Association, each of which is accorded annually to the most distinguished published work in historical scholarship respectively in Architecture and in Art History.

Recognizing with Mr. Hitchcock that 1852 is by no means a natural terminus to the sequence of developments in such key figures as Barry and Pugin, we join wholeheartedly with Mr. Summerson in the hope that, to this important study, Mr. Hitchcock will add a further one dealing with High Victorian Architecture in Britain.

JAMES GROTE VAN DERPOOL
Avery Library, Columbia University

BOOKS RECEIVED

- Wayne Andrews, *Architecture, Ambition and Americans* (New York: Harper and Brothers, 1955). \$7.50. (Reviewed p. 29.)
Thomas D. Church, *Gardens are for People* (New York: Reinhold, 1955). \$10.00.
Mabel M. Gabriel, *Livia's Garden Room at Prima Porta* (New York: New York University Press, 1955). \$12.00.
Talbot Hamlin, *Benjamin Henry Latrobe* (New York: Oxford University Press, 1955). \$15.00.
G. E. Kidder-Smith, *Italy Builds* (New York: Reinhold, 1955). \$10.00.

P. H. Kirk and E. D. Sternberg, *Doctors' Offices and Clinics* (New York: Reinhold, 1955). \$12.00.

Sarah Newmeyer, *Enjoying Modern Art* (New York: Reinhold, 1955). \$4.95.

Joseph Rykwert (ed.), *Alberti: Ten Books on Architecture* (London: Alec Tiranti; American distributors are Transatlantic Arts, Hollywood-by-the-Sea, Florida, 1955). \$8.50.

Allan Temko, *Notre-Dame of Paris* (New York: Viking Press, 1955). \$6.75.

Rachel Wischnitzer, *Synagogue Architecture in the United States* (Philadelphia: Jewish Publication Society of America, 1955). \$6.00.

Amos Ih Tiao Chang, *Intangible Content in Architectonic Form* (Princeton: Princeton University Press, 1956). \$3.50.

Arthur Voyce, *The Moscow Kremlin* (Berkeley: University of California Press, 1955). \$10.00.

John Terry, *The Charm of Indo-Islamic Architecture* (Hollywood-by-the-Sea, Florida: Transatlantic Arts, Inc., 1955). \$3.75.

LETTERS

Editor, *SAH JOURNAL*

Dear Sir:

Here is a summary of my article, "The Birth of a Skyscraper," which appeared in the February 1956 *Kenchikukai*. I shall be glad to send reprints to your readers upon request. While the text is in Japanese, the illustrations may be of interest.

A NOTE ON THE SKYSCRAPER

Since I visited New York City and Chicago and saw numerous tall buildings there I have been quite interested in the progress of the skyscraper in the nineteenth century. So I read Mr. Winston Weisman's article on this subject with keen interest ("New York and the Problem of the First Skyscraper," *JSAH*, March 1953) and was impressed particularly by the story of Henry Baldwin Hyde, the founder of the Equitable Assurance Co., who introduced for the first time the then newly-developed elevator in order to find tenants for the upper stories of his building.

The question of what is a skyscraper is always discussed when one talks about the skyscraper, and it is certainly a worth while topic. Mr. Weisman was trying to find a definition of the skyscraper because he wanted to determine which was the first skyscraper in New York. Of course there are different interpretations of this matter, and I should like to mention my own from the historical point of view.

First of all, we should notice some essential elements which are most important to consider in the conception of a skyscraper; briefly speaking, there must be two things present: (a) it should be a commercial building, and not just a monumental one; (b) it should have the unusual height as Mr. Weisman suggested and whence its name, regardless of its method of construction and building materials. There may be no problem about the first requirement because we know a number of tall buildings all over the world and still we do not call them skyscrapers; the skyscraper has to be built in a city and used for daily work and business. In regard to the second requirement, however, there are problems: how many stories does a building have to have to be called a skyscraper? and how many feet? In other words, how high is the building which could be called unusually high? It looks quite difficult to determine, yet if you think over the situation of the contemporary cities, it seems to become rather clear, because to be unusual is a relative matter after all and there must be a usual building height among the contemporary commercial architecture.

If you remember the commercial district in the cities in the early nineteenth century, you will recall that the usual building height was four or five stories and in these cases the building materials and the method of construction played no role. The real factor which has set the limit of height for commercial building is the simple

fact that a building of more than a certain height is extremely inconvenient for daily use if it has no mechanical lifts. If it is just a monumental building it could have more than five stories, like a Japanese pagoda, but if it is commercial, i.e., if it is occupied by stores and offices, it would be useless to be higher than that limit. Accordingly, such a tall and useless building would not normally be erected by a commercial enterprise.

We know, however, that an unusually tall office building, the Jayne Building (see *JSAH*, October 1950), was built in Philadelphia in 1849 for Dr. Jayne's office. It was eight stories high and certainly an unusually tall building at that time. Yet the point in this case was the fact that the whole building was used only by his office and not for rent, otherwise it must have been almost impossible to find tenants for its upper stories without any elevators. But I would hesitate to call it a skyscraper because of this peculiarity. The height in this case meant somehow monumentality and not commercial importance. To me the height of a skyscraper should mean mainly commercial advantage. On this point, the Equitable Building in New York, completed in 1870 on the initiative of Mr. Hyde and discussed thoroughly by Mr. Weisman, invites our attention. The building had six rentable floors and the installation of two elevators made it successful to find tenants for its upper stories. The biography of Mr. Hyde (*Henry Baldwin Hyde, A Biographical Sketch*, New York, 1902) quoted him as saying:

It is a very singular fact that at the time the first Equitable Building was approaching completion there was not a single elevator in New York in a structure devoted exclusively to office purposes. All members of the building committee, except myself, were opposed to the introduction of elevators, but finally consented to have one erected. It required quite a struggle on my part to obtain their consent to put two in the building.

The book added:

He claimed that for lawyers and others similarly situated the upper floors, if made easily accessible, would be more comfortable and appropriate than those near the level of the street.

Thus, for a far-seeing client, an elevator was introduced into the office building on a commercial basis, an event which cannot be overstressed in noting the development of commercial buildings. Even though the Equitable Building was only six stories high (plus another floor for storage), it was evidently unusually high at that time. I think the birth of the skyscraper in the nineteenth century was the moment when a building with more than five stories gained success as a commercial enterprise by means of the newly-developed elevator as an ascending machine. Consequently the Equitable Building in 1870, it seems to me, should be the first to be really called a skyscraper, regardless of its comparatively low height from our present view.

As Montgomery Schuyler indicated in his article on a skyscraper (*Architectural Record*, Vol. VIII, No. 3, p. 231), the invention of an elevator doubled the height of building, yet the height soon reached another limit because of the building materials. We are told that the Monadnock Building in Chicago seemed to reach the limit of height as a brick building—the higher a masonry building, the thicker its walls, which greatly diminishes the available space in the lower stories. At this point came the invention of steel-frame construction which opened up a new stage in the development of the skyscraper.

Dept. of Architecture,
Nihon Univ., Tokyo

BUNJI KOBAYASHI

SAH NEWS

THE AUGUST TOUR

The annual August Field Trip of the Society will begin on Saturday, August 18, 1956, in Albany, New York. The group will see Albany and Troy on the first day. On August 19 the tour will visit places in the Mohawk Valley. August 20 will be spent in and around Cooperstown. Daniel M. C. Hopping is in charge. Notices will be sent to the membership.

AIA HONORS SAH

The Board of Directors of The American Institute of Architects voted at its recent annual meeting to award the Society of Architectural Historians a Citation for Distinguished Achievement. The formal presenting of this honor takes place this month at the Institute's annual convention in Los Angeles.

SAH—GREAT BRITAIN

On the invitation of the Society of Architectural Historians an English chapter to be known as "Society of Architectural Historians—Great Britain" was formed on March 2, 1956, at the Three Tuns Hotel, Durham, England with Bruce Allsopp serving as chairman. Others attending were Messrs. Frank Jenkins, W. A. Singleton, F. Fielden, D. W. Chalk, Professor and Mrs. W. B. Edwards, and Mrs. Allsopp with American guests being Walter Creese, past editor of the *JOURNAL*, and our past president Henry-Russell Hitchcock.

Our president sent a letter of warm welcome to our English colleagues. Walter Creese and Henry-Russell Hitchcock reviewed briefly the founding of the Society in this country and some of the problems encountered by us. Mr. Singleton with great generosity offered the York Institute of Architectural Studies as headquarters for the Society.

A committee was formed to draft a constitution for the organization and Frank Jenkins was elected secretary-treasurer of the Society. As its first project, the Society proposes to begin a systematic cataloguing of all buildings of merit erected in England between 1860 and 1914, representing a period not as yet covered by any protection society.

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